# New Zealand JOURNAL OF AGRICULTURE

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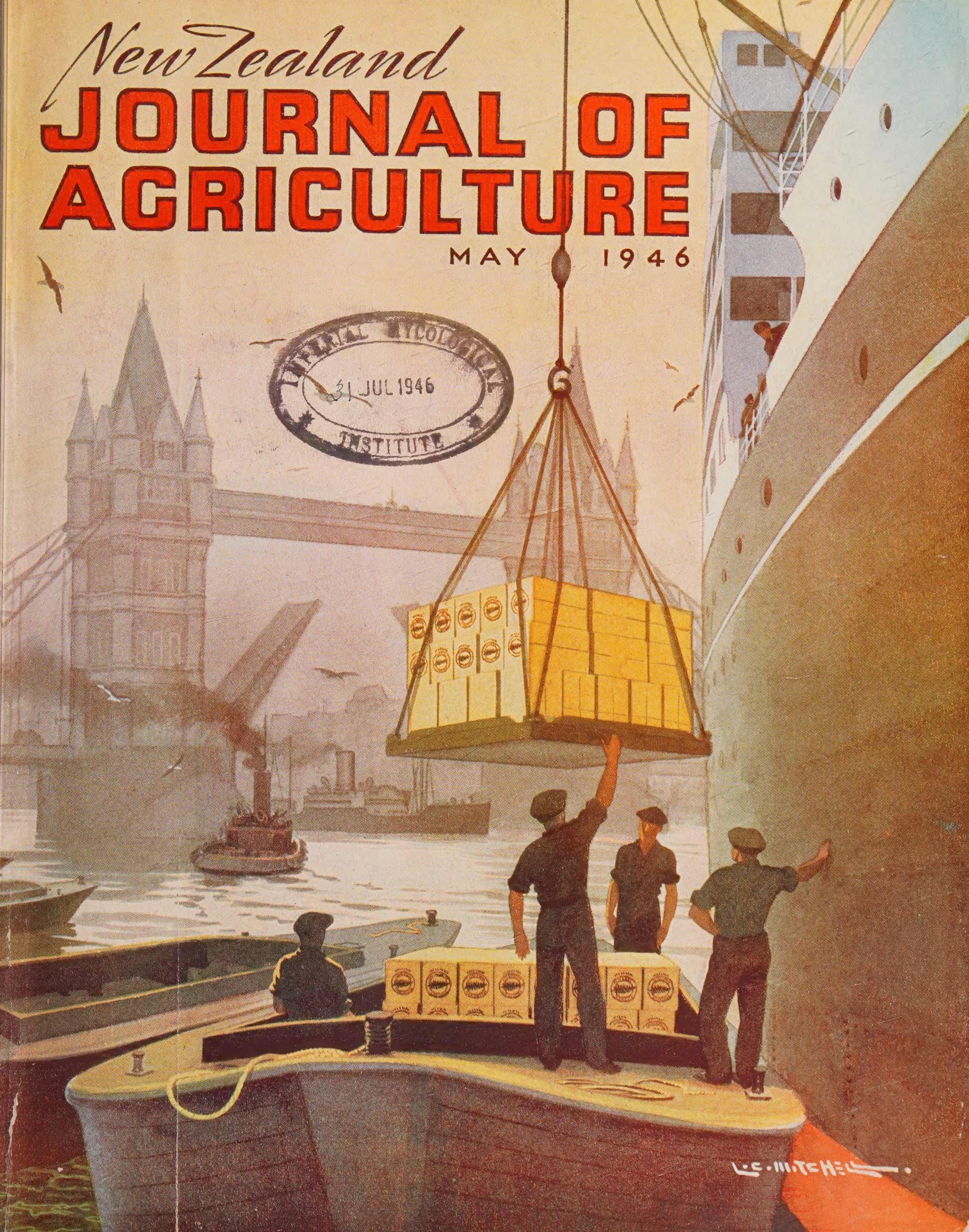
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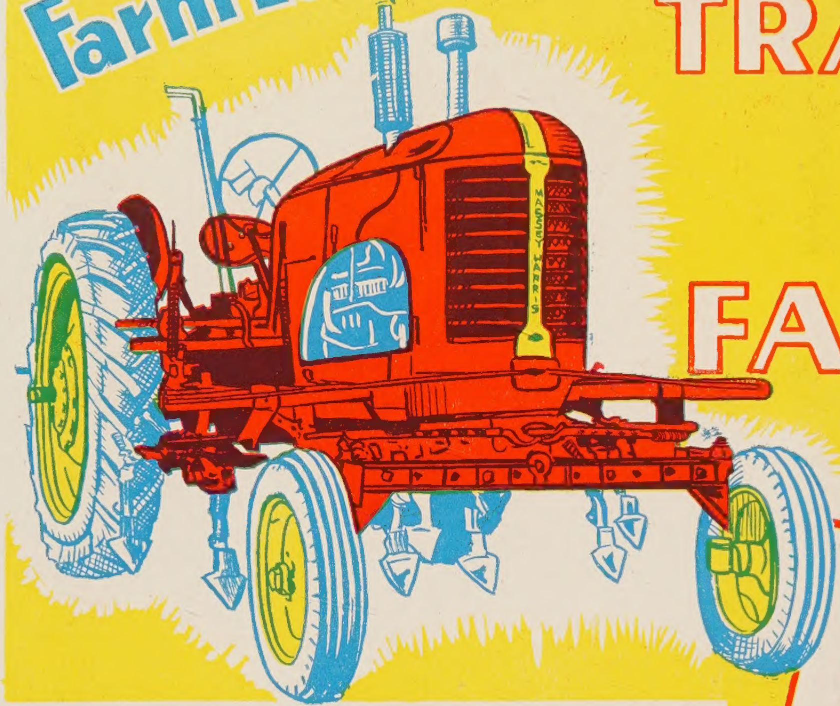

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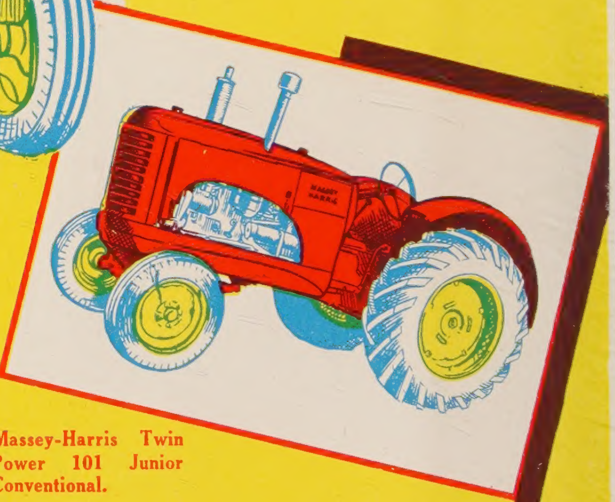

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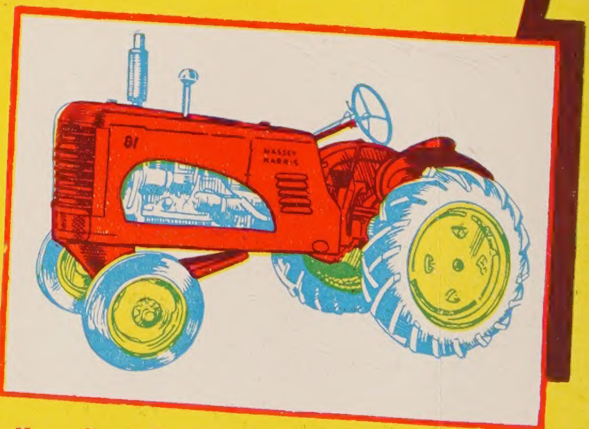

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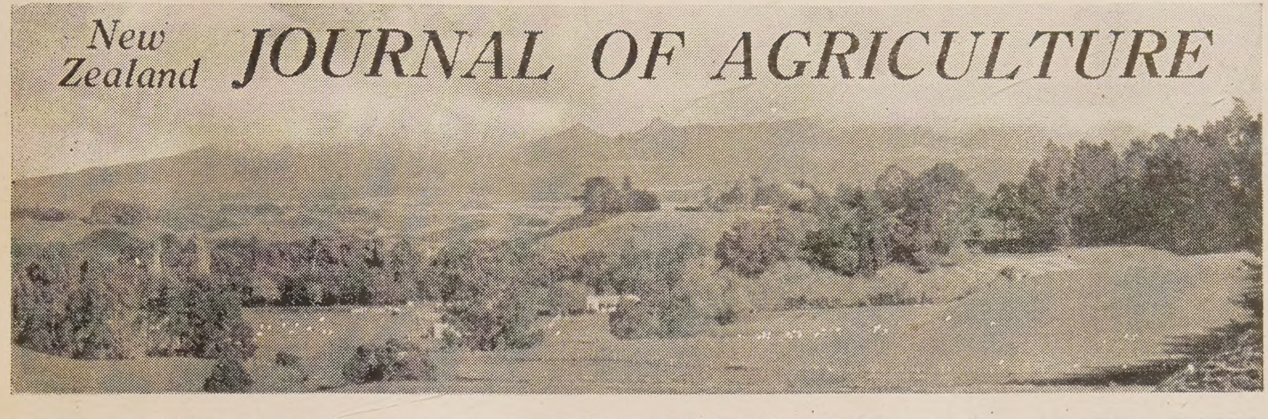
New Zealand JOURNAL OF AGRICULTURE

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# Problems of Mechanical Milking

**THE mechanical milker is something more than a machine, because to work efficiently it must operate in such a way as to gain the "co-operation" of the cow being milked. For this reason its mechanical aspects, important though they are, are not alone in determining the efficiency of the mechanical-milking process.**

*By* **W. G. WHITTLESTON,** *Animal Research Station, Ruakura.*

ALTHOUGH hand milking has been practised since the beginning of civilisation there was no evidence until early in the 18th century of any attempt to milk cows mechanically. According to an early edition of "The New England Farmer," a very old American farming journal, attempts were made in 1719 to milk cows by inserting straws into the teats. This idea seems to have developed independently of other attempted methods for, as late as 1878, when vacuum type machines were being tried, a Mr. George, of New York, marketed a milk-tube arrangement for insertion into the teats. Such methods caused much trouble, and veterinarians of the time took strong action against them.

About 1860 a vacuum milking machine was developed in Scotland, and by 1890 W. Murchland, of Kilmarnoch, had produced a fairly satisfactory machine.

While such experiments were being tried in Scotland, the Americans and the Danes were devising complicated mechanical contraptions which attempted to imitate hand milking. In 1885 a hand-operated mechanical squeezing machine was patented in Denmark, and in 1886 an American invention for a curious mechanical milker was patented. The latter machine consisted of rollers running in "milking cylinders" so arranged that the rollers ran from the top to the bottom of the cow's teats.

## *Burst of Invention*

An acute shortage of farm labour at this time led to economic conditions which paved the way for a great burst of invention in the machine-milking field. In 1895 Dr. Shiels, of Glasgow, produced his "Thistle" milker, a machine which employed an intermittent vacuum, swinging between 4½ and 15in. of mercury. The teat cups used on this machine were of stout, moulded rubber. Because of the swinging vacuum within the cup some squeezing was applied to the teats. Thus were established the basic principles of the modern milking machine.

Machines similar in action to the "Thistle" machine are still used to some extent in other countries. The last fundamental invention in the sphere of mechanical milking was that of the double-chambered teat cup, consisting of an outer metal cup casing and an inner rubber liner or inflation. The outer casing is connected to a "pulsator valve," supplying an intermittent vacuum, while the inner chamber is connected to the milk pipe or bucket at constant vacuum. Patents for this device were taken out in 1902 by Hulbert and Park, New York, and in 1903 by Alex Gillies in Australia. The Gillies cup, which had a metal mouthpiece, is still used by a small percentage of farmers in this country.

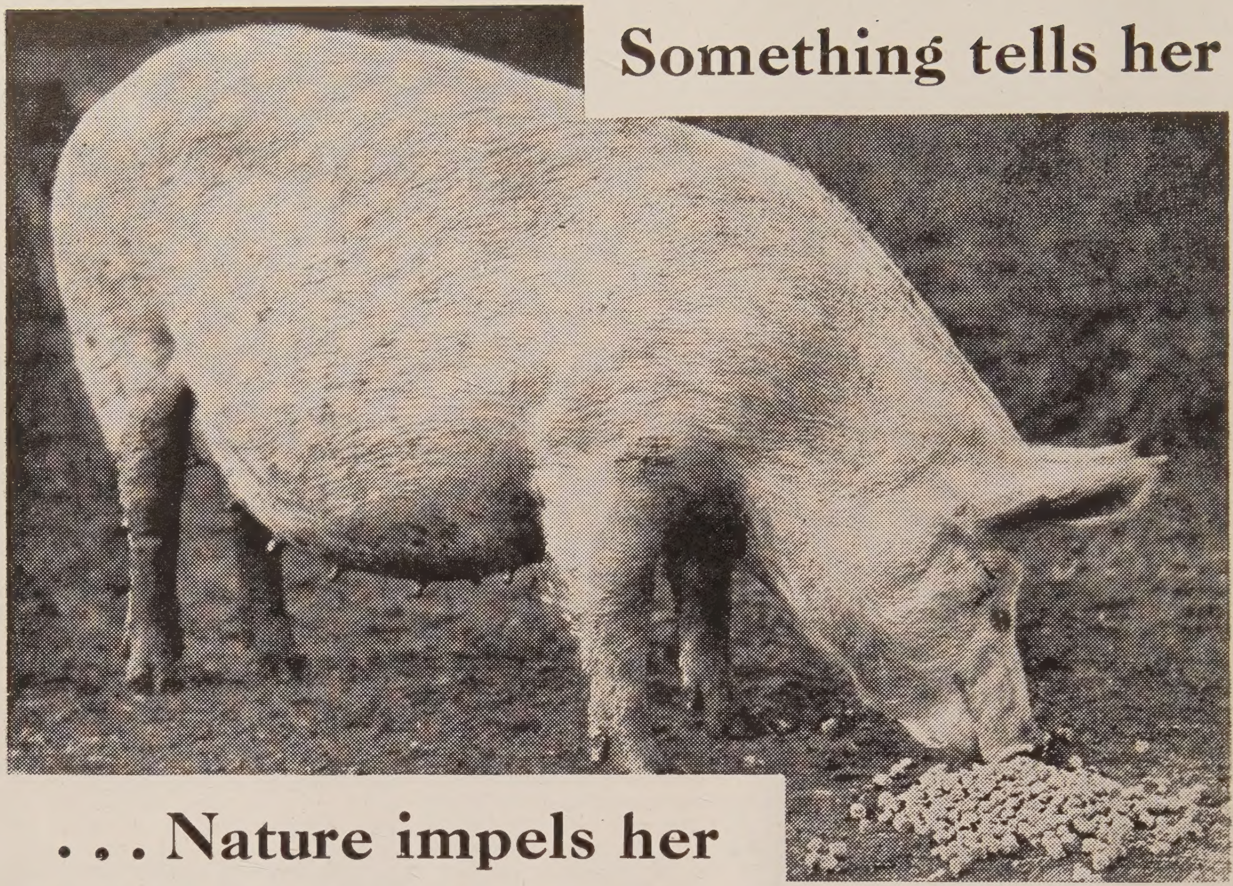
There has been no alteration, therefore, in the fundamental principles governing the action of the milking machine since 1902. Of course, different processes for the handling of milk and for applying the basic principles have been invented, but the early bucket and releaser plants using the double-chambered cup embodied all the principles necessary for effective milking.

The problems arising in the attempt to increase the efficiency of mechanical milking may come from three sources, from the cow, from the man in the shed, or from the machine.

## *The Cow*

What happens to the cow during the milking process? What part does she play in the job of collecting milk twice every day throughout the season? In the light of present knowledge the following apparently occurs:

It must be clearly understood that the process of **ejecting** the milk is different from that of **secreting** it. Milk secretion is a steady process continuing throughout the day and night and stopping only when limited by a high pressure in the udder or the ending of the lactation period. It is essentially a chemical process whereby some of the constituents of the blood are converted into the materials out of which the milk is made. This amazing process takes place in tiny cells surrounding very small globular units (alveoli) connected together by fine branching tubes which collect together into bigger and bigger tubes until the relatively large cavity, the milk cistern, is reached at the base of the secreting tissue in the udder. The alveoli are surrounded by blood vessels from which the milk-producing substances pass. They are also surrounded by tiny smooth muscle fibres which are capable of contracting and forcing the milk down into the large tubules from which it may flow quite



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freely. The fine, branching tubes are also surrounded by these muscle elements which, on contracting, shorten the tubes so forcing the milk out.

Milk ejection is a separate rapid process which causes milk to be forced down from the higher reaches of the udder where it is entrained in the alveoli and fine ductules. As in a sponge, the liquid is held in the region of the fine tubes because of surface tension. Before it can be drawn it must be "squeezed" out. This squeezing action is the ejection process which is an interesting kind of "reflex." A reflex is a nervous reaction, conscious or unconscious, whereby an action is provoked as though automatically by the reception of a suitable stimulus. For instance, a finger coming in contact with a hot surface is withdrawn quickly before any thought is given to the process.

## *Saliva Secreted*

When food is placed in the mouth saliva is secreted. The hot surface and the presence of the food in the mouth are called "natural unconditioned stimuli," that is, they are normally associated with and bear some relation to the reaction produced.

However, in normal life reflexes are not so simple. The sight or smell of a substantial meal, or even the sounds associated with its preparation, may cause the secretion of saliva. The stimuli of the meal's appearance, its smell, or the sounds connected with it, because of frequent association, become welded to the natural unconditioned stimulus, the presence of food in the mouth, and become just as effective in producing the necessary flow of saliva. Any kind of stimulus—a ringing bell, a flash of light, a sequence of actions—may become associated with an unconditioned stimulus and so prompt its normal response. When this happens the reflex is said to be "conditioned."

What has all this to do with milking cows? The fact is that correct "conditioning" of the cow is more important than tinkering with the machine for the maintenance of efficiency in the cow-shed.

The reflex responsible for the "let down" of the milk is normally caused by the sucking of the teats and the bunting of the udder by the calf. Even in natural conditions the sight of a thirsty calf may become a "conditioned" stimulus. Under modern machine-milking conditions the routine of coming into the yard, the leg-roping and chaining, standing in the bail, and the udder washing may be conditioning stimuli. Among other things, the regularity of association between conditioning and natural stimuli determines the effectiveness of the former. Moreover, the actual sequence of elements making up a complex set of conditions and the intervals between them are important in producing a conditioned reflex. For instance, if a reflex has been established to, say, ringing a bell, blowing a whistle, and flashing a light, and then the stimuli are presented in another order, the response, if apparent, will be greatly diminished. This emphasises the need for a strict shed routine.

## *Extraneous Stimulus*

Another important point should be noted. If, with the complex conditioned reflex previously mentioned, a strong smell is introduced when the light is flashed (the stimuli being presented in the right order), the result will be a greatly-diminished response or none at all. The strong smell, or "extraneous stimulus" will have upset the conditioned stimuli. The entry of a stranger into the shed or an unusual sound may act as such a stimulus. It should be noted that such a stimulus does not necessarily cause the cow's reaction to be one of fear.

Most work on conditioned reflexes has been with dogs by the famous Russian physiologist Pavlov. The principles which, however, apply to all animals are important in training and the development of habits.

When the teats of a cow are stimulated, nervous impulses pass into the central nervous system, thence to part of a small gland at the base of the brain, the posterior lobe of the pituitary gland. This gland then secretes a chemical (a hormone) into the blood stream which, when it reaches the udder, causes the tiny muscles surrounding the alveoli and small ductules to contract so forcing the milk down. The substance which causes this reaction is destroyed in the blood stream, so that unless the milk is withdrawn as soon as possible after it has been let down it will once more be drawn up into the small tubules and alveoli, from which it cannot be removed by milking in the ordinary way.

A practical lesson is learnt from this. To get the greatest possible quantity of milk from a cow at any milking she should be milked as quickly as possible.

If a cow is given an injection of adrenalin she will "hold her milk"—nothing will cause her to let it down. Adrenalin antagonises the hormone from the pituitary gland. This happens when a cow is frightened. Fright releases adrenalin into the blood. It stops the smooth muscles such as those in the intestine or in the udder from acting.

It can be seen that two factors may prevent the normal "let down"—an "extraneous stimulus," which may upset a well-established conditioned reflex, and fright, which causes the "let-down" muscles to go out of action.

## *Man in the Shed*

Following are the rules which should be followed by the man who runs the shed and who must appreciate a cow's needs if milking is to be efficient:—

(a) The milking procedure should be regular and precise;

(b) As the washing of the udder is one of the strongest stimuli associated with milking, the cups should be applied soon after this has been done. Delay in applying the cups means the loss of the hormone causing milk to be let down;

(c) The milking machine should get the milk away as quickly as possible for the same reason.

(d) Any action likely to frighten the cows should be avoided;

(e) Unusual actions and sounds must be avoided; and

(f) Cows should be trained to go through the shed in approximately the same order each day. Such a procedure in many cases causes milk to be let down as soon as the udder is washed or even sooner. With good training leg ropes and back chains may be dispensed with.

## *Stripping*

Whether hand stripping is necessary is still being debated. However, if the foregoing rules are applied hand stripping may be unnecessary. If the milk is properly let down and the machine is capable of withdrawing it quickly and completely, hand stripping obviously is not needed. Two points should be noted, however. First, there is evidence that when the udder is almost milked out the teat cups tend to crawl up the teats and cause the upper part to close off. This prevents the removal of the last milk in the milk cistern (demonstrated by Petersen at the University of Minnesota). To obtain this residue the cups should be pulled gently downwards ("machine stripping") for a few moments just before removing them. Where cows come in with strained udders (milk secretion having been stopped by the resultant pressure) removal of the small amount of milk by this means may help to keep up production.

Second, when a cow does not become conditioned properly to letting down her milk to the machine she may finally give a satisfactory ejection reaction only to the stimulus of hand stripping. In this case all the milk removed by the machine is that held in the milk cistern and larger ducts. Such a cow, which would give a lot of strippings, would frequently be described as giving a "second flow" of milk. In actual fact, she would not let her milk down until hand stripping was commenced. Only in this sense could "strippiness" be described as a habit. Conditioned reflexes are such, however, that a cow may be so conditioned that she needs both the application of the machine and the start of hand stripping before she finally lets down her milk.

If a cow, through an anatomical defect, cannot give a free flow of milk (the duct at the tip of the teat is, perhaps, too small) she will milk slowly and incompletely. Such an animal might be called "strippy" and she might readily develop the habit of not letting her milk down until hand stripped. The prolonged stripping needed to milk her dry might cause this.

Experience and knowledge show that in a well-run shed with an efficient milking machine hand stripping may be replaced by machine stripping with an increase in milking speed, the removal of the most unpleasant aspect of machine milking, and a decrease in staff. Production is not adversely affected and there is no increase in udder disease.

### Machines and Mastitis

Reference should be made to what is known about milking machines in relation to mastitis. Professor Petersen has drawn attention to the fact that under some conditions the milking machine can cause a partial vacuum to form in the teat. This would tend to cause contamination to be sucked into the teat duct from the teat cup of the machine. Such a condition would be accentuated by the presence of a solid column of milk in the dropper tubes ("surging" of the milk) and by the use of flabby, soft inflations. The former condition arises when the air-admission holes are blocked, the latter when the inflations are not tightened regularly. There is some evidence, not entirely convincing, that these factors contribute to the aggravation of mastitis. While the bucket plant, in which the tendency for "surging" is minimised, would for the reasons given be associated with less mastitis, recent experiments over three seasons show no difference between bucket, low-line, and orthodox high-line machines.

Hygiene is important in the control of infectious diseases such as mastitis. The use of cracked, fatty inflations from whose surfaces contaminating bacteria cannot be washed is a means of spreading the organisms causing the disease. Caustic soda as a cleansing agent which produces a smooth, shiny surface on the rubber-ware is recommended together with the regular changing of inflations.

The actual level of the vacuum is not apparently an important factor, while pulsator rate and ratio probably have no effect. However, because high vacuums are otherwise undesirable they should be avoided. Not only does a high vacuum tend to cause congestion of the teat but the discomfort to the cow frequently upsets the letting-down process and the animal does not milk out properly.

It appears that the milking machine causes a little mastitis in dairy cattle. The addition of devices such as vacuum reducers or stabilisers, "vacuum breaks," and dual vacuum systems has no effect on the control of mastitis in machine-milked herds.

If the milker is in the habit of taking a squirt of milk from each teat before milking in order to check the cows for the incidence of mastitis this practice should be included as part of the regular shed routine. To get the best results when machine milking squirts should be taken regularly. It would be unwise to take a squirt from the teats on some days and not on others. The need for a regular programme in the shed cannot be overstressed. The good milker will fit into his shed routine all the necessary activities with regularity.

### Satisfactory Milking

Requirements for satisfactory milking may be summarised thus:—

1. The machine must have a regular action, not likely to disturb the cows;
2. The milk must be drawn away quickly;
3. The dissembling and cleaning of the machine must be simple; and
4. The whole unit must be reliable and not susceptible to faults which might upset the milking routine.

### Speed

To get the milk away from the teat cup the cup nipple claws, droppers, and taps should be of generous dimensions. No obstructions should be placed between the cup and the milk line. "Vacuum breaks," vacuum reducing valves and so on tend to obstruct milk flow and have no significant effect either in speeding up milking or in reducing strippings as is so often claimed. The writer in studying factors influencing machine milking has used apparatus which automatically records the volume of milk delivered as a function of time. This apparatus has been used for testing several additional devices for milking machines and in no case has any advantage been found over the simple machines without the device attached. Further, provided that it has a regular action, the nature of the pulsator is not critical.

From the aspects of milk hygiene and the control of udder disease it is desirable that the machine should be simple and easily cleaned. It is far better to spend money on stainless-steel tubing (when it is available) than to install fancy "gadgets." The simplest, most robust, and the most reliable machine is the best.

## Pig Broadcasts

UNDER the auspices of District Pig Councils, broadcasts will be delivered in June, 1946, as follows:—

Auckland—1YA, on June 19, at 7.15 p.m., "Avoiding Losses in Pigkeeping," by H. H. Preston, Supervisor, Northlands District Pig Council.

Dunedin—4YA, on June 10, at 7.15 p.m., "Whey and How to Utilise it as a Pig Feed," by N. McDonald, Supervisor, Otago District Pig Council.

Palmerston North—2ZA, on June 21, at 7.15 p.m., "Pigs is Pigs," by L. Marsdon, Supervisor, Wellington District Pig Council.

Napier—2YH, on June 11, at 7.15 p.m., "Winter Feeding of Pigs," by H. Hopkins, Supervisor, Tairawhiti District Pig Council.

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# RAPE SEED PRODUCTION

**IN the past few years rape seed has become quite an important crop in the South Canterbury district, where all the commercial Certified seed rape crops are grown. This article describes the methods employed in growing rape for seed.**

*By* N. H. GREAVES, *Fields Instructor, Timaru.*

APPROXIMATELY 190,000 acres of rape are required annually in New Zealand to fatten and provide supplementary feed for between three and four million lambs and sheep. To obtain this large area, some 250 tons of rape seed are required, which, taken on the average yield obtained, necessitates approximately 800 acres to be grown each season to provide our own seed requirements.

## *Varieties*

In the past two main varieties of rape, Giant or Kangaroo and Broad Leaf Essex, were imported into New Zealand, though many lines of imported seed were wrongly named or contained mixtures of both varieties. With the introduction of seed production locally under Certification, pure lines of these varieties have been selected and multiplied, and the seed is distributed as Certified Giant and Certified Broad Leaf Essex No. 1 respectively.

**Certified Giant is taller growing, usually with a fairly distinct stem, and produces a greater bulk of feed at the first grazing, but makes very little recovery later. Certified Broad Leaf Essex No. 1 is more dwarf in type, with no distinct stem, and though not a heavy yielder at the first feeding, it makes up in total production through its ability to recover to produce a second and even a third growth.**

Recently seed of a third variety designated Certified Broad Leaf Essex No. 2 has been distributed for the sowing of fodder crops. This variety, though actually a cross between the two former-mentioned varieties, is in appearance and manner of growth and recovery very similar to Broad Leaf Essex No. 1, but it grows rather larger and gives a heavier production of fodder. Uncertified rape seed is also available, but this seed carries no assurance of variety or purity.

## *Place in Rotation*

The ideal place in the rotation for the rape seed crop is out of a lea paddock, which, fallowed through the summer, is fairly free from weeds, with the soil in good condition to start the crop off well before the winter. This crop may then be followed successfully by wheat and then sown down. The seed crop coming off early allows early ploughing and cultivation for wheat to be sown.

## *Cultivation*

Ploughing should be carried out early in December. The land may be skimmed or hustled first and top-worked to clean. Deep ploughing at the end of January is advisable, finally working down to a firm, fine seed-bed ready for sowing in March. As with the fodder crop, all cultivation is directed at arriving at a clean, firm seed-bed and conservation of moisture.

## *Sowing*

The best time for sowing is in early March to allow good establishment before winter checks growth. It must be remembered that this crop like all

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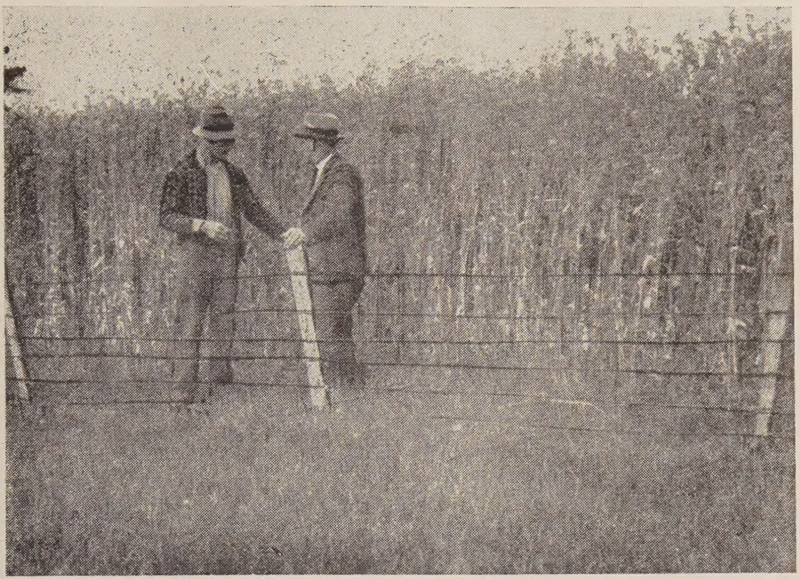

Giant rape in flower in late November-early December, about one month before cutting. Yield, 15cwt. per acre.

root crops saved for seed, requires this overwintering to induce the double season effect, which makes the plant run to seed in the spring. The rate of seeding is 5lb. per acre sown in 7in. drills, and the ideal depth is ¾in. After sowing the area is closed up and left until ready for harvesting.

## *Harvesting*

It is often difficult for a farmer to decide the stage at which to cut a crop. Taking an average representative sample of heads throughout the paddock is the best indication. When the majority of these heads are a golden colour and the more mature seeds have started to colour the crop is fit to cut with the binder. In larger areas, particularly on downy country, it may be necessary to cut the area in blocks or to cut the sunny faces slightly earlier than the rest. Cutting too early induces shrivelling of the seed and excessive loss in weight. Leaving the crop too long risks excessive losses by shaking.

The crop may be stooked after cutting and is very often stook threshed by a header and not stacked at all.

> **The ideal method is to make a temporary canvas platform in front of the elevator, lifting the whole stook on and feeding it into the machine, thus saving all the seed which is shaken out.**

Some farmers prefer to leave the sheaf on the stubble; others have tried windrowing, but these methods cannot be generally recommended, as heavy losses usually occur.

## *Threshing the Crop*

A good indication of the success or otherwise of the threshing of the rape crop is a study of the samples of lines just before machine dressing. The main object is to obtain the most, the best, and the cleanest seed possible. The lines of seed which come in vary from one extreme to the other. However, the worst feature of most of the samples is the great quantity of shelled and split seed, to eliminate which in machine dressing means heavy losses.

The crop should stand in stook for approximately 10 days to allow the seed to mature. Care should be taken to save all the seed possible by lining the drays with sacks, or, in the case of the header, making a sack platform. Each stook should be lifted on completely, avoiding separating the sheaves until the stook is on a platform where the shed seed can be gathered. Finally, the drum should be set wide open and speed decreased as much as is consistent with thorough threshing.

## *Yields*

Although the average yield per acre is about 6 to 7cwt., some exceptionally heavy crops, up to 15 to 17cwt. per acre, have been harvested.

## *Seed Certification*

Because of certain problems associated with the production of rape and similar seeds, the total acreage under Certification each season is controlled, while the actual areas are approved before being sown, and the seed for sowing is supplied by the Department of Agriculture.

Isolation is a very important factor which requires to be watched closely. Unfortunately isolation can be spoiled by the uncontrolled growth of rape, turnips, etc., and also by the practice of leaving feed crops to flower indiscriminately. A minimum distance from other brassica crops of half a mile in all directions is aimed at.

## CARE OF FARM MACHINERY.

Proper care of farm implements will save many pounds of the farmer's money. Hints on how to look after the mowing machine, the header harvester, the binder, and the plough, together with a chapter on fuel, are given in Bulletin No. 203, which is obtainable free from offices of the Department of Agriculture.

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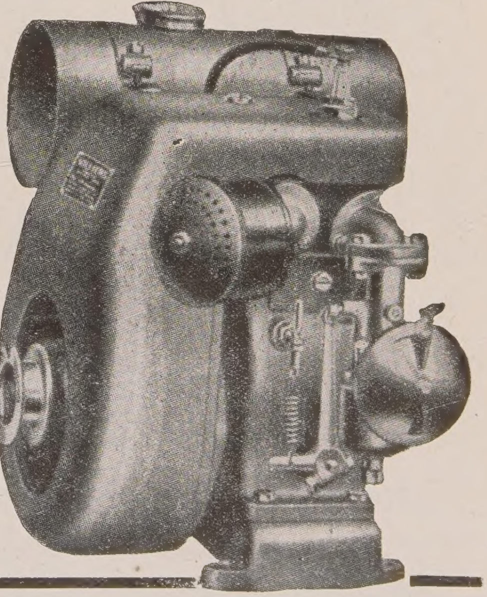

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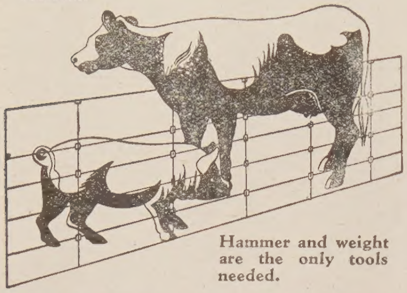

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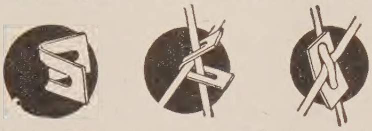

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# HISTORY OF TOBACCO GROWING IN N.Z.

By Wm. C. HYDE.

**OF all the means available to soothe, cheer, and stimulate the spirits of man, tobacco smoking is probably the most popular. When properly grown and prepared, tobacco is a narcotic which is pleasant and soothing to excited and restless nerves. It contributes to good will, sociability, and a reasonable attitude of mind. The nicotine it contains has important medicinal properties.**

TOBACCO has been grown in New Zealand from the earliest days of settlement, when the Maoris, particularly, were quick to recognise and appreciate its use. Their method was to air-cure the ripe leaves and assemble them neatly in short twists. These were then placed systematically in a narrow, long box made of thick, heavy timber. A close-fitting block of wood was placed on top and applied with great pressure by a strong iron screw-press which was attached. The culture and processing were chiefly in the hands of women who specialised in the work and gave it close attention. They were especially proud of the fact that their tobacco was free from any adulteration.

A few European settlers in different parts of the country have regularly grown tobacco leaf and made it up into plugs for their own use. What the tobacco has lacked in quality has been compensated for, in their estimation, by its strong aroma and flavour. Most smokers consume tobacco critically and appreciatively; the demand, therefore, is for high quality. This is obtained only by exercising care at every stage of production, in the choice and maintenance of a suitable seed strain, in the selection of suitable land and climate, in the careful treatment of the crops in the field and during the curing process and, especially, in the conditions under which it is finally bulked down.

**No product is more sensitive to environment; none so easily spoiled by mismanagement.**

## *Early Commercial Growing*

The growing of leaf on a commercial scale and the manufacture of tobacco are comparatively new industries in New Zealand. Commercial activity began near Hastings, where the well-drained, sandy loam, the fine summer climate, and the good transport facilities, including a seaport, favoured the new project.

It was near Hastings that Mr. Gerhard Husheer, who had a wide experience in the tobacco industry overseas, started growing and manufacturing tobacco leaf for pipe smoking during the first ten years of this century. The product placed on the market by the National Tobacco Company Ltd. was an air-cured brown cut tobacco of good body. All went well until about 1916 when wartime difficulties made reorganisation imperative.

About this time Nelson settlers showed interest in the commercial production of tobacco leaf. As they were accustomed to growing crops, such as fruit and hops, which required special treatment and careful processing, it was not surprising that they soon showed progress in tobacco-leaf production. Mr. C. C. Nash, of Hope, produced crops of air-cured brown leaf for pipe smoking of a size and quality that left no doubt about the possibilities of successful production in the district where suitable land and proper treatment were given to the work. Mr. Nash was for a time field supervisor of Nelson tobacco-growers growing leaf under contract to the National Tobacco Company Ltd., Napier.

At Harakeke in the Motueka district of Nelson Mr. C. E. Lowe in aiming at producing the silky leaf suitable for making cigarettes made extensive experiments with varieties of tobacco. He also experimented with various curing processes. Aided by knowledge gained from United States tobacco-growing, local growers made good progress, and it was at Harakeke that the first tobacco kiln in the district was built. The kiln was fully charged with leaf of uniform maturity; temperature and humidity were manipulated by means of a furnace and ventilators, so that in about six days curing was completed and the kiln drawn and recharged. Success in this work hinged very largely on the character of the tobacco seed sown. So important was this factor that Mr. Lowe paid particular attention to variety seed trials and to the careful selection of mother plants among those varieties which proved most suitable under local conditions. The consistent improvement of the seed strains thus produced was of the greatest value to the industry.

Mr. Lowe was then appointed local agent and demonstrator to tobacco-growers in the Nelson district, producing tobacco leaf under contract to W. D. and H. O. Wills (N.Z.) Ltd., of Petone, Mr. J. W. S. Brodie being the manager.

## *Preferential Duty*

The attention given to tobacco crops by Nelson growers, and the suitability of the climate and much of the land, led to manufacturers concentrating practically all contracts with growers in that locality. In the 1924-25 season, 300

SEEDLING BEDS

## TOBACCO CULTURE

HARVESTING TOBACCO

BULKING LEAF
IN GRADING SHED

acres were devoted to tobacco-leaf production, and the crop was in the vicinity of a quarter-million pounds weight. At this time, Great Britain granted a preferential duty to Empire-grown tobacco leaf. This, together with the successful pioneering work done in Hawke's Bay and Nelson, led to a boom in tobacco-leaf production in New Zealand. Many companies were formed for the production and manufacture of tobacco, chiefly in the Auckland province, and many farmers were anxious to grow it as a profitable sideline. The Department of Agriculture appointed Mr. C. E. Lowe Government Tobacco Instructor in 1926, and under Mr. J. A. Campbell, Director of the Horticulture Division, experiments were carried out in many districts. Instruction in growing and curing tobacco leaf was given in response to numerous enquiries. New growers were advised that only high-grade tobacco leaf was saleable and that until their land and climate were proved suitable, and until they had gained experience in manipulation, only experimental areas should be grown.

As the demand of local manufacturers of smoking tobacco was likely to be exceeded, the export of tobacco leaf to Great Britain was considered, and in 1926, to assist in establishing an export trade, the Government guaranteed growers of approved tobacco leaf an average gross price of 2/3 a pound on open market in London for first-grade leaf and 1/4 a pound for second-grade leaf. The first experimental shipment of 7cwt. was exported in July, 1927. Best bright leaf sold in London at 2/2 a pound and best air-cured at 1/6 a pound.

> **The report stated: "As a whole these tobaccos compare favourably with other colonial tobaccos and more closely approximate American leaf than the majority of them."**

Substantial local demand meant that a further trial export shipment was not made until 1930, when 42 bales were sent to London. Grown in new districts by farmers with little experience with the crop, the consignment was made up of lower-grade tobacco. This prompted serious consideration being given to "standard grades" for New Zealand tobacco leaf. The responsibility for drawing up a standard was left to a committee consisting of Messrs. R. W. Gracey, of W. D. and H. O. Wills Co., C. E. Lowe and W. C. Hyde, of the Horticulture Division of the Department of Agriculture. In Wellington they graded out a full range of local tobacco leaf, which was inspected by all interested parties. When final agreement was reached, the grades were described in terms that were embodied in regulations gazetted in 1931 under the Products Export Act, 1908. Three sets of these "standard grades" were placed in bond in different parts of the country and were in use for many years.

Tobacco plants bagged to prevent insects from visiting the flowers and cross-pollinating them.

## *Technical Staffs*

Tobacco-growing in the Auckland Province made rapid progress during 1932 and 1933. Six or more companies had been floated there to grow and manufacture tobacco. most of them on quite an ambitious scale. Because the industry was new and the country's population comparatively small adequate technical staffs were not available. Despite excellent organisation in many respects, other companies failed to make progress. By amalgamating some continued for a while, until about 1939, when they all found tobacco-leaf manufacture for critical smokers an unprofitable enterprise. Some excellent tobacco leaf was grown and cured, but in many cases, because of lack of appreciation of its sensitive character, the leaf was spoiled because of unsuitable storage.

The interest in tobacco-growing led many farmers to plant the crop without first making arrangements for its disposal. This class increased to such an extent that by 1933 the total area in tobacco was 3,154 acres. The manufacturing companies then told growers at the beginning of the season that only contract leaf would be purchased. This had the effect of reducing the area the following season by about 600 acres. In the Motueka district, where four-fifths of the crop was grown, not only did a dry season follow but a hail storm in December damaged a considerable acreage of leaf. This was followed by an equally damaging frost in January. There was further reduction in 1935, chiefly through a number of companies in Auckland closing down. In addition, a consignment of 80,000 pounds of tobacco leaf was conditioned, graded, packed, and exported under the supervision of Tobacco Instructor Lowe. The tobacco which arrived in London in good order created a favourable impression. A request was made for further supplies. As the prices realised were considered satisfactory, a consignment of about the same size was forwarded in October, 1936. This, too, arrived in good condition and brought prices which were considered very satisfactory. The 1937 tobacco crop was 3,776 acres, the largest acreage then planted in New Zealand. The export consignment in October of that year was rather smaller than previously and the prices realised were slightly lower.

Planting tobacco for export was now a recognised practice. The acreage of tobacco for export increased in the following year, although the general total was smaller. Tobacco was grown chiefly in the Nelson Province, where there were 700 growers averaging three to five acres each. Some growers planted as much as ten acres. There were about 150 leaf-curing kilns in this district. Between August and October, 1938, 171,995 pounds (202 tierces) were shipped to London. Most of this consignment, which was more than double any previous seasonal shipment, was conditioned in the Proctor machine at Motueka which had been officially opened in July, 1938.

### *Damaged by Salt Water*

The first of these shipments, consisting of 49 tierces, arrived in good condition and brought satisfactory prices. The remaining two shipments arrived in London damaged by salt water. Insurance was recovered. Nearly all this damaged tobacco arrived back in New Zealand in July, 1939. When inspected in Wellington the condition of the tobacco leaf varied widely between good, fair, and tainted. A small quantity only had to be destroyed.

Reporting on the occurrence, the London agent recommended that "tobacco on the ship should be given best facilities for ventilation, and dunnage should be used freely. Incidents in transport indicate these tierces are too heavy."

About this time the various Tobacco Growers' Associations in the Nelson district combined in a Federation, appointing Mr. F. O. Hamilton, of Nelson, president, and Mr. N. I. Lewis secretary. In November, 1939, Mr. Lowe retired from the Department of Agriculture where for thirteen years he had served as Tobacco Instructor. War having broken out in Europe and manpower and shipping space being restricted, the export of tobacco was discontinued: In the circumstances there was a ready local demand for available supplies. Since then the crop has been stabilised at about 3,000 acres a year, nearly all of which has been grown in the Nelson Province.

As previously stated, the custom has been for growers of tobacco leaf to make an acreage contract with a manufacturer. A supervisor appointed by the manufacturer advises and directs growers. He also determines the suitability of contractors and their land. In the early 1930's, however, the success of the industry led farmers in many districts to plant trial crops. Subsequently, uncontrolled production gave rise to many difficulties that seriously handicapped the industry. For instance, some small manufacturers gave no contracts and bought up surplus leaf at a low price—sometimes at one-third of the contract price paid by other firms. The "Regulations for the Grading of New Zealand Tobacco Leaf" approved in 1931 assisted in meeting this problem. Something more was needed, however, to maintain satisfactory standards of quality and price. This need was met by the "Tobacco-growing Industries Act, 1935," under which a Tobacco Board was established to control production and marketing. The Board consisted of four growers' representatives, and four representing the manufacturers, the chairman being a Government nominee. Besides promoting the sale of tobacco leaf here and overseas, the Board issues licenses to growers and warrants for the sale and purchase of raw tobacco leaf.

### *Research Station*

In 1937 the Board established a tobacco-research station at Riwaka. Many problems arising from the production and curing of tobacco leaf of high quality under local conditions have been dealt with successfully, to the great advantage of growers, manufacturers, and consumers. In this work the Cawthron Institute in Nelson has generously co-operated, especially in soil surveys of the Nelson district, which show clearly the areas of land favouring production of tobacco leaf. Since the war started production has been limited but some expansion may now be expected as more labour and materials become available.

◆

"The Theory and Practice of Poultry Feeding" (Bulletin 198) has just been published and is on sale at 6d. per copy (post free) at the offices of the Department of Agriculture at Auckland, Wellington, Christchurch, and Dunedin. It contains information of value to all interested in egg production.

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# OATS

### By A. STUART, *Instructor in Agriculture, Invercargill*

**ALTHOUGH oats can be grown anywhere in New Zealand, they do best in a moist, cool climate, such as that of Southland. This is evidenced in the heavy yields of milling oats secured by growers in this district.**

IN the North Island, outside of the Wellington Province, only small areas are grown, mainly for feeding as chaff. In the South Island Canterbury is the largest grower of oats for threshing, chaff, or greenfeed, followed by Otago and Southland. Otago uses more oats for chaff and greenfeed than does Southland, but the latter leads Otago in the acreage threshed. With the decline of the horse as motive power on the farm, the acreage of oats has correspondingly decreased over the past two decades, particularly in the cropping districts of the South Island (see table on page 463).

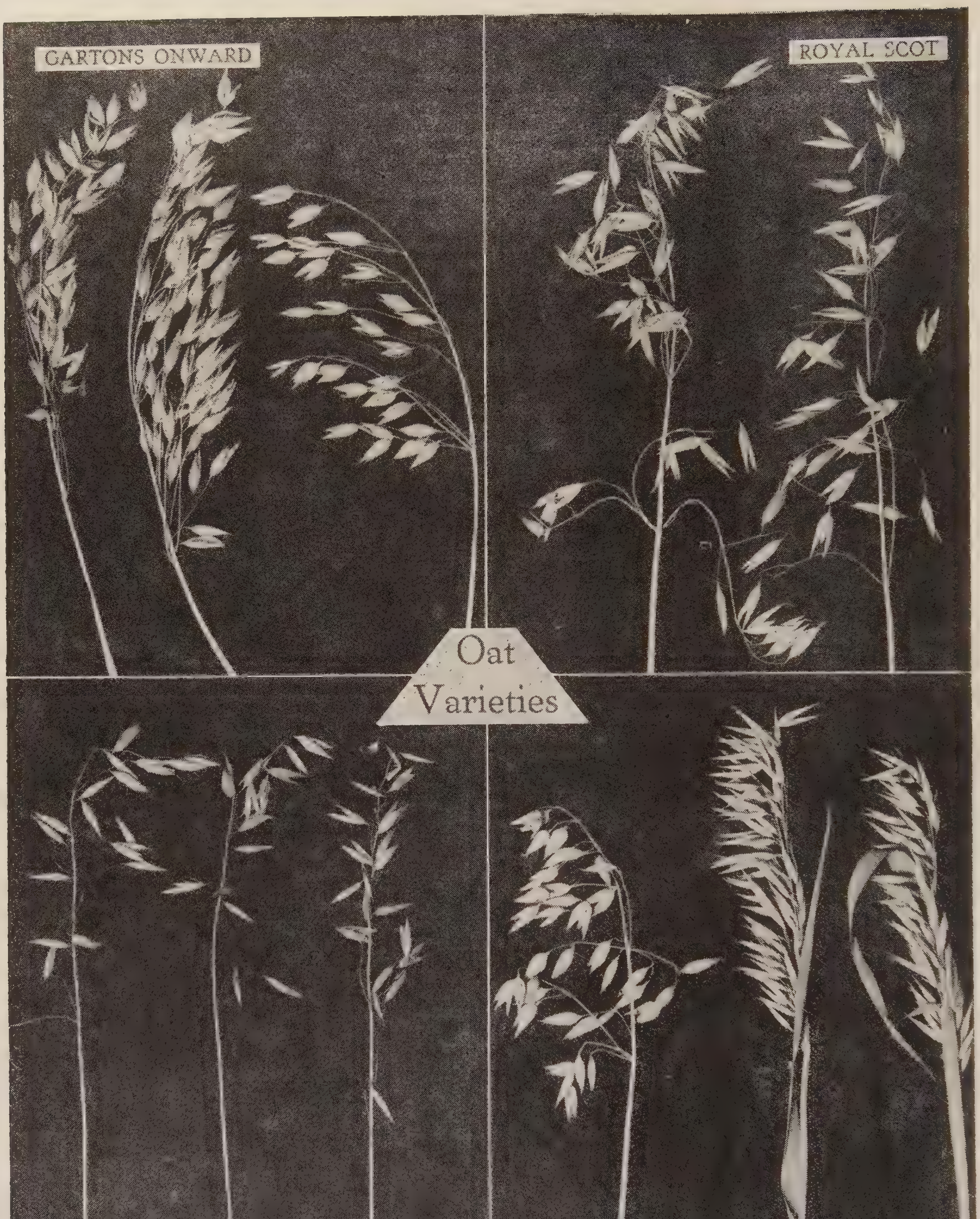
## *Soil and Rotation*

Oats require a fairly free loam of good second-class quality for best results, but they can be grown on almost any class of land and almost anywhere in the rotation. In Southland they usually follow swedes or turnips, but may follow wheat, linen flax, or even grass. Frequently they are sown as a nurse crop to grass. Oats can be successfully grown following even a previous crop of oats. Although ordinarily this would not be regarded as good farming practice, the writer can vouch for the following facts. In the Winton district the harvesting of a 100-bushel crop of oats was preceded by a strong wind causing a shake of 4-8 bushels of seed. After the area was threshed the paddock was disced and then harrowed. A fine strike resulted, and after feeding off in the spring the area was allowed to grow on. In the following autumn a yield of 127 bushels per acre was obtained.

In Canterbury the purpose for which the crop is grown largely determines the time of sowing. On the lighter soils autumn is the usual period for sowing, particularly with varieties such as Algerians and Duns, which may be utilised first as greenfeed and subsequently closed for the production of a chaff or grain crop. Where Gartons are grown for greenfeed winter sowing is usual on the medium to light land, but this variety is not extensively used in this manner.

## *Cultivation and Seeding*

Autumn-sown oats would usually follow wheat or linen flax. In this case the land is ploughed as soon as the paddock is clear of the previous crop, which would normally be February or March. It is then worked down and sown, leaving a fairly rough surface to avoid excessive caking of the land during the succeeding winter. Harrowing after feeding off in the spring is beneficial.



Oat Varieties

GARTONS ONWARD
ROYAL SCOT
DUN
BINDER

Gartons Abundance oat heads.

When oats are spring sown following swedes or turnips the ridges are disced down immediately the breaks are eaten by stock. If the land is free of weeds, ploughing may not be necessary, but generally a shallow ploughing can be recommended, followed by at least two discings, followed by harrowing. When oats are used as a nurse crop to grass a finer and firmer seed-bed is necessary than when oats are sown alone, and the use of the Cambridge roller before sowing the grass is imperative. Clod-crushing is a frequent alternative to rolling between discings.

When oats are spring sown after grass the land is usually ploughed from May onwards, and disced at intervals in the early spring to destroy successive germinations of weed seed, which in Southland is comprised mainly of yarr (spurrey). A final discing and harrowing is given immediately before drilling. Sown in this way at least three, but possibly four, double discings, followed by harrowing, are required.

In Canterbury the preparation of the land for oats is similar to that adopted for the wheat crop, the kind and amount of cultivation being governed largely by the quality of the land, the preceding crop, and the purpose for which the crop is to be grown. For example, following a stubble crop the ground may receive preliminary cultivation before deep ploughing, or alternatively if the oat crop is required for greenfeed only the land may be only ploughed and worked down before sowing.

In Southland the bulk of the crops are sown in October, and heavy seedings are the rule. Generally 4-5 bushels per acre is the seeding, but this is reduced to 3 bushels when sowing with a grass mixture. This seeding is again reduced for autumn sowing, particularly of tillering oats, such as Duns. In Canterbury the normal seeding for spring sowing, usually in September and October, is 2 to 2¼ bushels per acre.

## *Varieties Used*

For milling purposes those varieties preferred by millers are grown. The trade prefers for milling a white oat, with a fairly plump grain. The line should be of good colour, well matured and even throughout, being relatively free of seconds and any evidence of second growth. The most important point to the miller, even above bushel weight, is a low percentage of husk to kernel.

Each year the Standards Committee of the New Zealand Grain, Seed, and Produce Merchants' Federation determines the grades to be adopted for that season, depending on seasonal and other factors, and these standards are accepted by the trade.

**OAT ACREAGES IN 1944-45 AND 1935-36.**
**Compared by Summary of Land Districts.**

| | For Threshing. | | For Chaff, Hay, or Silage. | | Not Harvested (Fed off, etc.) | |
|---|---|---|---|---|---|---|
| Land District. | 1944-45 | 1935-36 | 1944-45 | 1935-36 | 1944-45 | 1935-36 |
| North Auckland .. | 13 | — | 353 | 874 | 617 | 567 |
| Auckland .. .. | 60 | 58 | 1,527 | 2,494 | 1,410 | 942 |
| Gisborne .. .. | — | 16 | 153 | 522 | 163 | 105 |
| Hawke's Bay .. | 217 | 530 | 1,459 | 4,676 | 1,796 | 1,415 |
| Taranaki .. .. | — | 12 | 1,289 | 4,025 | 688 | 992 |
| Wellington .. .. | 1,137 | 1,521 | 4,168 | 7,116 | 3,119 | 3,129 |
| Marlborough .. | 1,376 | 923 | 3,263 | 8,170 | 2,091 | 1,598 |
| Nelson .. .. | 450 | 498 | 1,867 | 3,922 | 1,496 | 1,054 |
| Westland .. .. | — | — | 217 | 326 | 263 | 94 |
| Canterbury .. .. | 41,118 | 40,297 | 44,380 | 110,386 | 33,286 | 40,807 |
| Otago .. .. | 12,633 | 14.689 | 21,956 | 47,965 | 4,493 | 6,332 |
| Southland .. .. | 20,680 | 18,958 | 18,567 | 37,004 | 2,165 | 1,279 |
| Dominion totals .. | 77,684 | 77,502 | 99,199 | 227,480 | 51,587 | 58,314 |

A. and P. Statistics 1935-36 and Government Statistician for 1944-45 figures.

**Gartons Abundance:**

This oat is very widely grown for milling purposes. It is more generally known as Gartons, though this is also a trade term applied to all white oats, with the exception of those of a distinctive character, such as Sparrowbill. This latter variety has largely been replaced by Gartons Abundance. which is shorter and not as coarse in the straw and is not so subject to straw-break, a condition wherein the stems break off about 18in. below the head as the crop approaches maturity.

In Southland Gartons Abundance is generally spring sown, but further north the usual practice is to sow in the autumn. From autumn-sown Gartons Abundance one good grazing of palatable feed is obtained in the spring, without affecting the resulting grain crop. On heavy soils and in wet summers this oat has a tendency to lodge.

**Gartons Onward:**

This oat has been introduced in recent years, and has tended to replace Gartons Abundance to some extent. It does not lodge as freely as Abundance, being somewhat coarser in the straw. It has, however, shown a tendency to straw-break. The grain is very large and plump.

**Royal Scot:**

This is a recent introduction which has yielded well. The plant is tall growing and somewhat coarse in the straw. The oat has a strongly-developed awn, which occasions an apparent low bushel weight, but the awn is not taken exception to by millers. Royal Scot has no advantage in resisting lodging when compared with Gartons Abundance, and it would

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appear to be more suitable for drier soil conditions.

**Binder:**

This variety has given good grain yields and is an excellent chaff oat, as the straw is fine and reasonably short. The promise it showed in previous years in being resistant to lodging was not borne out during the 1944-45 season, when lodging was general.

**Duns:**

This is the favourite autumn-sown oat in Southland. While the greenfeed obtained during the winter is not great, about September the growth is rapid, and the crop can be fed off until the end of October, usually in breaks. These breaks can be grazed two or three times without affecting the yield of the subsequent grain crop. The grain is blackish grey and is alleged to contain a high percentage of oil, which probably accounts for the fact that it is much sought after as feed for race horses.

**Algerians:**

This is the common chaff oat of Canterbury and the North Island. While it is not classed as a white oat, it may on occasion be used for milling. It is mainly autumn sown, and can stand successive grazings in the spring before being allowed to go to maturity. It is rust resistant in those localities where it is most popular. New season's Algerians often give poor germination unless an interval elapses after harvesting, during which the oats mature by throwing off surplus moisture.

**Resistance:**

This variety has been tried of recent years. As indicated by its name it is resistant to lodging. It has yielded well, but is viewed with disfavour by the millers, who found the grain rather variable in size and too thin for their purposes.

**Huskless:**

Huskless has also been tried and proved to be resistant to lodging. It gives a high yield after allowing for the fact that the grain is huskless. Being naked, however, the conditioning of the grain is rendered difficult, with the consequence that it does not store well. This, combined with the fact that millers could not handle it without special machinery, accounted for it losing favour. Huskless oats are particularly suitable for chick feed when broken up.

### *Fertiliser*

Oats are often drilled without manure on good soils, especially where there is any tendency for the crop to lodge. Before fertiliser restrictions 2cwt. of superphosphate or reverted phosphate per acre was generally drilled with the seed. This tended to hasten maturity. Other farmers on heavier soil preferred potassic superphosphate, while others used potash in even greater proportions to the phosphate, as it was claimed this produced quality of grain associated with strength of straw, but in an unfavourable season this often proved fruitless in avoiding lodging.

Liming is not regarded as necessary for oats, as they are able to grow much more successfully than wheat or barley on acid soils. Nevertheless, the standard Southland practice is to apply 1 ton of carbonate of lime when the paddock is broken up (this would be before the first crop of swedes is taken) and a further ton when the area is sown out to grass.

In Canterbury the usual application of fertiliser is 1 to 1½cwt. per acre of superphosphate or reverted superphosphate.

Oats should remain in stook for 10-14 days before being threshed.

## *Harvesting and Yields*

The crop is ordinarily cut with the binder, and remains in stook for 10-14 days before being stacked. A crop intended for chaff is cut greener than if threshing is intended.

The shortage of labour on farms has stimulated the popularity of harvesting with the header harvester. A crop for heading should be dead ripe, or alternatively the crop may be cut with the mower and the pick-up attachment of the header used about a week after cutting.

The average crop of oats will yield 2 tons of chaff per acre, but yields of 3 and even 4 tons have been obtained. The average yield of grain in Southland is in the vicinity of 65 bushels per acre, but the Dominion average is less than 50 bushels. Yields of over 100 bushels per acre are common in Southland. With the price of oats at 4/- per bushel good chaff should be worth in the vicinity of £6 10s. per ton on trucks.

## *Seed Treatments*

Oats are liable to such diseases as smut, rust, and mildew. Rust and mildew may be greatly accentuated by the seasonal growing conditions, and it is good policy to avoid sowing lines affected by either rust or mildew the previous year.

For smut, however, it is always advisable to treat the seed before sowing. The old method of pickling with formalin or bluestone has now been superseded by dusting with one of the organic mercurial dusts. Two ounces of dust is sufficient for one bushel of seed. Most lines of seed handled by merchants are machine-dressed and dusted before being sold.

A good crop of oats in Southland.

## *Utilisation*

In the 1943-44 season 39,652 acres of oats were grown for threshing; 118,210 acres for chaff, hay, or silage, and 71,025 acres for greenfeed. The area threshed was the smallest ever grown, representing little more than half the area threshed in the 1935-36 season. When it is realised that approximately 750,000 bushels are required as seed for the total area sown, this left very little grain available for milling requirements. In 1944-45, however, the area threshed was increased considerably, due no doubt to seasonal conditions, but the oats grown for chaff showed a further decline, reflecting still further the decline of the horse on New Zealand farms.

News has reached New Zealand of the death on March 5 at Berkhamsted, England, of Sir Richard Ashmole Cooper, Bart., head of the well-known firm of sheep dip manufacturers, Cooper, McDougall and Robertson Ltd. Sir Richard was the eldest son of the first baronet, the late Sir Richard Powell Cooper, M.R.C.V.S., who was a nephew of William Cooper, M.R.C.V.S., who founded the firm in 1843.

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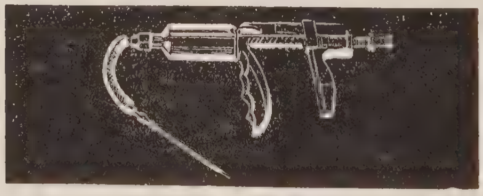

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# Successful Fat-lamb Farming on 84 acres

FAT-LAMB farming would be the choice of many returned men and others who are at present dairy farming, but it is generally believed to require at the very least 200 acres and a capital expenditure of £7,500 or more. In this article A. T. Shannon, Field Economist, Hamilton, describes the activities of a grassland farmer whose taxation returns show that his 84-acre sheep farm is as successful financially as the productive capacity is from the viewpoint of farm management.

THE farm is within a few miles of Te Awamutu on the main road to Cambridge. The main soil of the locality and the farm under discussion is of the Ohaupo silt series. This consists of a light, brown, powdery loam derived from showers of volcanic ash. It is easily cultivated, responding well to phosphates and slightly to lime. It does not bake or crack, and holds the moisture better than most Waikato soils, especially when consolidated. These features undoubtedly contribute to the success of the enterprise described here.

After being demobilised from the First World War, the farmer of this 84-acre property took up a block of store sheep country in the northern King Country. This project absorbed the finance available and the efforts of years without promising adequate returns. Turning from this class of farming for these reasons, attention was focused on the possibilities of a high-producing small sheep farm, where the capital outlay would be within reasonable limits while providing a decent living. In 1929, some six months before the bottom dropped out of the sheep market, activities were transferred to the small holding, which till then had been running dairy cows.

Bought at £32 an acre and with a mortgage of more than £2,000, the property had only four poorly-fenced paddocks and an inadequate natural water supply. The possibility of carrying about 400 breeding ewes and a score of dairy cows on the 84 acres without any cropping had been discussed with farmers in the locality.

**As might be expected, that was declared impossible, and it might have been to a less capable and determined man.**

From the beginning the small farm was run independently of the store sheep farm, in which interests were soon to be relinquished, except that cheap totara posts which had been bought some years previously were brought down to the smaller property.

## *Developing the Property*

The first step in development was to renovate the existing fences and construct more subdividing fences. This eventually made available for grazing ten paddocks varying from six to twelve acres. The next improvement was to put down a bore to provide an all-the-year supply for the six troughs which provide water for the ten paddocks. These were the essential developments making possible the controlled grazing which is the basis of intensive farming. In addition a low area of between three and four acres was drained and put into production. Fortunately it was not necessary to renew any pastures, nor has this been the case since.

Dairying had left the paddocks in good heart and free from sheep parasites, which assisted in carrying the 420 ewes in the first year, but that benefit could not be relied on for long. With such a high concentration of sheep some form of management had to be devised to spell the pastures and eliminate the chances of this farm becoming sheep sick. The necessity of milking a few cows to maintain an income throughout the year also had to be taken into account.

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In the first years a herd of up to 24 milking Shorthorn cows was run, and the number in milk was slowly tapered off as the farm became established. The calves were then run with the cows and sold fat at 2½ years old. When milking finally ceased a herd of 20 breeding cows was kept, so that in addition to these the farm carried approximately 20 calves and 20 heifers or steers a year older. Apart from bulls, the policy has been to rear all the cattle on the place, and very few other cattle have been brought in. In the past few years, because of the good prices for younger cattle, the breeding herd has been increased to 30 cows, and calves are sold off the mothers as vealers. In view of recent market prospects the production of mature fat cattle may again have to be considered. The bulls run freely with the cows, for there is no spare acre for a bull paddock.

Starting with 420 ewes under conditions which the casual observer would have described as overstocking, the numbers carried were increased to a maximum of 525 breeding ewes plus 20 cows and their calves. Fortunately, this season breeding ewes were down to 335 for the winter, plus 166 ewe hoggets bought in May, 1945, 8 rams, 30 cows, 3 yearlings, and a bull. The hogget replacements are being put to the ram this autumn as two-tooths. To raise the productive capacity to this level and hold it, a topdressing of 12 tons of superphosphate annually was applied before the war; no lime was used. Wartime rationing stands at 3 tons now, but 20 tons of lime were spread last year and 12 tons the previous year.

It is hardly appropriate to describe the present pasture as typical of what is expected in a season of normal rainfall. This farm will usually support a strong ryegrass and white clover growth, but it is in poor form just now and in places weed growth and goosegrass development is in evidence, specially in the hay paddock. Subterranean clover showed up on the lighter, rolling areas earlier, but that is peculiar to the season.

## *Pastures Kept Short*

The key to stock management on this farm is in keeping the pastures short and never permitting rank growth. That ensures that the grass is always coming away fresh and succulent, and the stock do not graze on stale or stemmy feed that is knee high. Harder grazing ensures a close sward, and the result on this farm is a heavier pasture production throughout the year, although at no time is it inches deep. Naturally a closer watch has to be kept on stock management, and in drought conditions the stock can be set back severely.

Lambing begins in late July, but the rams are left to run with the ewes till the end of December. This policy is workable on a small farm where the maximum production is essential and a late lamb is preferable to none at all. At the end of June the ewes are thoroughly crutched, so that when lambing is about to begin it is more easily possible to draft off the ewes that are close up and put them into paddocks near the house. That is repeated three or four times.

When the lambs are a week or ten days old they are shifted to other paddocks and left there until drafted fat or weaned. As a general rule the lambs are shorn, and they appear to do better in consequence. This policy is payable because the shearing is done by the farmer.

The normal procedure is to split up the cattle after feeding out is finished in September or early October, and put three or four cows with calves in each paddock, where they are left until June. The calves are sold in the autumn. The farmer endeavours to feed out only in the hay paddock, so that the fertility is maintained.

The first draft of lambs, amounting to about a third, is taken usually on November 25, although drafting was delayed until December 6 this season. After that the remaining lambs are all weaned and run together, for it is necessary at that stage to keep all available grass for the lambs and to ensure that the ewes are maintained on minimum requirements. Weaned lambs are not strictly rotationally grazed, but are moved according to pasture growth. The ewes are carefully drafted, the culls being put on to fair pasture in one of the smaller paddocks, just sufficient to hold their condition until the works can take them. Breeding ewes go on to the barest areas and are grazed hard until tupping time. Possibly two further drafts of lambs are taken off up to as late as March, depending on the season. Drenching of lambs is not considered necessary, nor are the ewes flushed for tupping.

It has been found possible to rely on getting a lambing percentage of at least 100 away to the works. The aim is to secure an average weight of about 38lb. Because of favourable conditions last season, the first draft averaged 42lb., the second 37lb., and the third 40lb., with an over-all average of 40lb. The position at the end of February this year was:—

335 two-tooth to five-year breeding ewes wintered.
First draft, December 6, 174 lambs, averaged 37.49lb.
Second draft, February 7, 132 lambs, averaged 34.87lb.
On hand, February 28, 80 lambs.

386 lambs = 115 per cent.

In view of the severity of drought conditions and the carrying capacity, these figures tell their own story.

## *Hay or Silage*

After the normal weaning in late November, it is the practice to shut up a 12-acre paddock, for silage if possible, otherwise for hay. The success of this unusual procedure reflects the denseness of the sward and the rapid recovery of the close-grazed pastures. Built-up fertility and the nature of the soil undoubtedly have much to do with this. It should be noted that these paddocks have little paspalum on them. Cut in late January or early February, this short and leafy growth makes first-class hay or silage, which is fed only to cattle. When the cull ewes and lambs are all gone, the entire farm, except for one or two paddocks with the breeding ewes, is grazed by cattle only for three to four months to clean the pastures of sheep parasites.

**Two widely-recognised principles of management have to be given careful attention on this farm. One is to avoid a sudden change in the class of pasture available for the stock; the other is to ensure that the ewes are carried through the winter on a steadily-rising plane of nutrition, specially with the approach of lambing.**

Experience has emphasised the necessity of giving full attention to these questions. Even under the best conditions some losses are always possible. This farmer feels that the main aim is to ensure that the ewes are never too fat in the autumn.

An important part of successful farming lies in the culling of the ewe flock and the selection of replacements. These are made up each year by two-tooth ewes in preference to five-year-olds. Practically no ewes are kept over five years old, the aim being to keep the flock young and thus able to stand up to the conditions of intensive farming. Moreover, it is considered that five-year ewe replacements are a more costly proposition than two-tooths, taking into account depreciation and other expenses. Stress is laid on securing the best ewes available. If an outstanding line is noticed in the stockyards they may be bought from May onward, depending partly on seasonal conditions.

Though some farmers would not agree entirely with this policy, it is considered that early buying is preferable because it is then possible to

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ensure that the ewes are in the best condition to take the ram at tupping time. Realising the common tendency to hold on to aged ewes in the hope that they will pull through for yet another season and rear a good lamb, this farmer is prepared to cull heavily on any indication of constitutional weakness or unsoundness of teeth. There is no place on a high-production farm for any ewe that might crack up, whatever the justification may be on a larger holding.

Commenting on the possibilities of starting out along similar small-farm lines at present, the opinion was expressed that it is more necessary now than some years ago to begin with a high percentage of cash equity and a low mortgage. That serves as a safeguard against declining prices over a period of years. A further point is that, although small fat-lamb farming may be easier physically, it requires very careful thought and planning. Capital outlay is lessened but maintenance costs are relatively higher than on a larger farm, especially for fences.

That in short is an outline of the management methods employed on this successful small fat-lamb farm. Of course, no article can illustrate fully the part played by soundness of judgment, which is partly a personal factor and partly the result of experience. But it does show that there can be few definite ideas of the size of what is vaguely termed an economic farming unit.

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# Winter Management of Pastures

By E. R. MARRYATT, *Fields Instructor, Whakatane.*

UNLESS a rough field for a run-off is available, some of the established pastures on a dairy farm usually suffer in the winter from too many beasts being held on them for too long. This often unavoidable situation produces several retrogressive results in the pasture. Although "the foot of the sheep turns sand into gold," the hoof of the dairy cow in the winter does almost the opposite. As those who have had their toes trodden on know full well, each hoof of a cattle beast has several hundred pounds of punch behind it and also quite a good cutting edge for anything which is fairly soft. Rain-softened land, which has had its protective covering of herbage removed by hard grazing, falls an easy victim to these turf-cutters.

WHEN poaching of a pasture first begins severe damage to that pasture can sometimes be avoided by changing the beasts to another pasture more able to withstand the hoofs of the herd, but this practice often leads to more of the farm being cut up. Besides, other pastures have probably been set aside for the growing of winter grass, and are not available without interfering with the whole feeding plan. The winter is too long and too wet, and often the available pastures are too few, to enable poaching to be avoided by distributing the herd over a wider area, although some farmers have been successful in this way.

Usually the best plan is to select a pasture on the best-drained soil on the farm and to confine the cows to it for the whole of the winter period and so limit to the minimum the area which will be damaged. The selection of a run-out pasture which is on the programme for renewal is often a suitable choice and helps to build up fertility on this area for the ensuing crop.

Poaching kills out many pasture plants and in their place weed seeds frequently germinate and fill in the gaps in the sward. Apart from the direct loss in pasturage produced by the weaker sward, the greatest loss to the dairy farmer in some districts when pasture has been poached occurs through the establishment of twin cress (*Coronopus didymus*). This plant can, later on, when grazed by the milking cows, cause the farmer, and possibly all other suppliers to his butter factory, considerable financial loss through lowered quality of the butter made.

Grass will not grow without nitrogen. White clover provides most of the nitrogen required by the grasses of first-class pastures both directly, through its root-nodule bacteria, and indirectly, through the grazing animal.

Rain-softened land, which has had its protective covering of herbage removed by hard grazing in the winter, is easily poached.

**To limit the possibility of cress flavour from twin cress, avoidance of poaching is important. If poaching is unavoidable, allow only one field to become poached, and later when cress is likely to prove troublesome, usually from September to December, keep the milking cows off this field.**

## *Winter-spelled Pastures*

Normally all pastures on dairy farms other than those used for grazing and for feeding out supplementary feeds are being spelled during the winter.

The extent to which these pastures are growing winter grass depends upon a variety of factors. The management of these pastures during the previous winter, spring, summer, and autumn may have quite an appreciable effect on winter growth. For example, a pasture which has had a crop of silage taken from it in October-November following winter spelling, and has then been leniently grazed throughout the summer and autumn, will probably be able to produce more leafage more quickly in the winter than a comparable pasture which has been hard grazed for the same period. The plants making up the leniently-grazed pasture have better-developed root systems.

The time of the last topdressing and the kind and quantity of manure used will also have an effect, and the best results will come from those pastures which have been topdressed with phosphates early in the autumn.

The time of closing and the stage of growth at which they were closed are both important, and a pasture closed early in April at about the three-inch stage of growth will have a big start on one closed in May when grazed bare.

The pasture type and the soil type also influence the amount of winter grass produced. The best growth comes from pastures with plenty of a good strain of ryegrass or with plenty of cocksfoot or prairie grass and on a soil which is naturally well drained. A sandy loam, for example, is better than a silt loam.

Weather conditions are also important. In cold climates winter growth is very limited, and under the best conditions only a little growth can be carried into the early part of winter.

The soil for winter growth should be well drained and light in texture.

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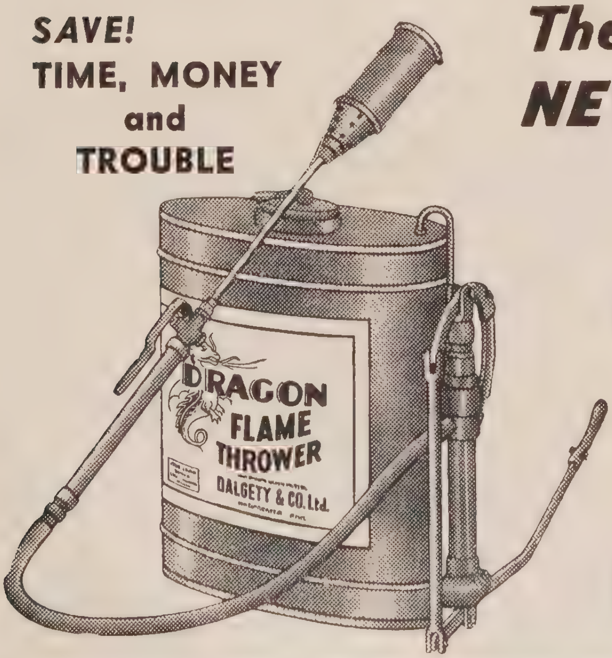

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The length of spelling between grazings affects the amount of herbage produced, as also does the severity of grazing and the time taken to graze the pasture. The greatest production results from the practice of allowing long spells between lenient but rapid grazings. Close and continuous grazing prevents the plants from giving anything like the quantity of leafage which would have been produced had the plants been leniently grazed.

## *Use of Nitrogen*

Grass will not grow without nitrogen. It is to some extent due to a decreased supply of nitrogen because of a considerable reduction in growth of white clover through low soil temperatures in the winter that the growth of ryegrass is inhibited. A phosphatic topdressing in March or April refreshes the clovers, and increases the supply of nitrogen to the grasses through the extra grazing providing more "stock" nitrogen in the form of dung and urine. Topdressing with liquid manure from the milking shed will also assist.

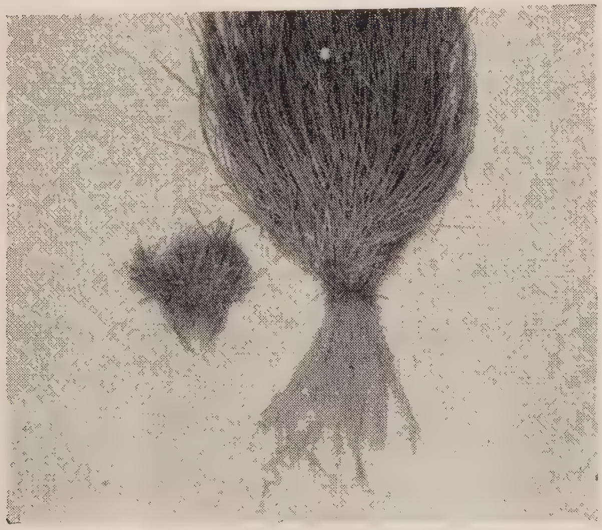
Purchased nitrogen in the form of sulphate of ammonia or ammoniated superphosphate is not a normal farm practice, but when correctly used it is justified for special purposes. The correct way to use it is only on good ryegrass pastures which have received previously adequate dressings of phosphate and lime. The nitrogenous fertiliser, about 1cwt. per acre, should be put on in April or early in May when the grass is still growing and when it has a growth of, say, 2in.

Keeping stock off the treated pasture until the growth has reached about 8in. is equally important. The top of this pasture should then be grazed off, leaving about 3in. ungrazed. In no circumstances should the pasture be grazed bare.

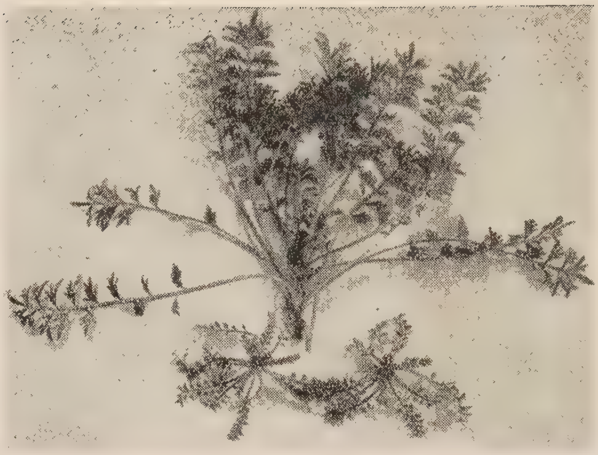
After grazing it should be spelled again. No slump of clovers occurs if these directions are followed, and the extra nitrogen supplied will give more winter grass. To grow winter grass, however, with or without purchased nitrogen, fields must be shut up while the grass is still growing, and before the soil gets too cold. The grazing should follow the lines indicated in this paragraph.

## *Young Pastures*

The successful establishment of autumn-sown pastures depends a great deal on good grazing management, particularly in the first winter. If the pasture was sown early in the autumn, it will produce a good quantity of feed in the winter, but discretion must be used in grazing. On no account should the grazing be severe or should poaching be allowed.



Roots and leaves tend to maintain a balance. The plant on the left is from a pasture kept short by continuous grazing, and the one on the right from a pasture only leniently grazed after long spells.



**_Coronopus didymus_, variously called twin cress, land cress, hog cress, swine cress, wart cress, and scurvy grass. The seed pod is about the size of turnip seed, and is divided into two distinct halves, giving the appearance of twin seeds.**

The soil will be still loose and should be consolidated by an early grazing before it has become very wet. Light stock such as sheep or young cattle should be used, and the grass should be grazed evenly to within 1in. of the ground during dry weather. A high concentration of stock to the acre is desirable to eliminate selective grazing and the punishing of certain more tasty species, and to ensure quick grazing and evenness of tramping. Before grazing again the pasture should be spelled until it is about 4in. high for cattle or 2in. high for sheep. The young grass should never be grazed bare, as that would have the effect of reducing root systems which require developing. Recovery is then delayed, vigour generally reduced, and more ground exposed to frost, rain, and wind.

Under-grazing of a young pasture can also be very harmful to clovers and the more permanent species of the sowing. If patches are neglected by the grazing animals, the mower should be used. The pasture will not become established until the white clover is growing well, and the young white clover seedling is a delicate plant and will not endure shade. Accordingly, grazing management in the winter and spring must aim at prevention of shading of the white clover.

On dairy farms in the North Island at least three grazings of a young pasture sown in March should generally be made, say in May, in July, and in August. On sheep farms young pastures are more inclined to be over-grazed than under-grazed, and a spell of 3 to 4 weeks should be given between grazings, which must not be too severe.

**In winter management of young pastures, avoid:—**

1. **Destroying young pasture plants by tramping, or by poaching.**
2. **Killing or suppressing clover plants by shading them for too long.**
3. **Punishing the grasses by too-severe or too-frequent grazing, which also results in an open sward.**
4. **Invasion by weeds and drying out in the spring and summer.**

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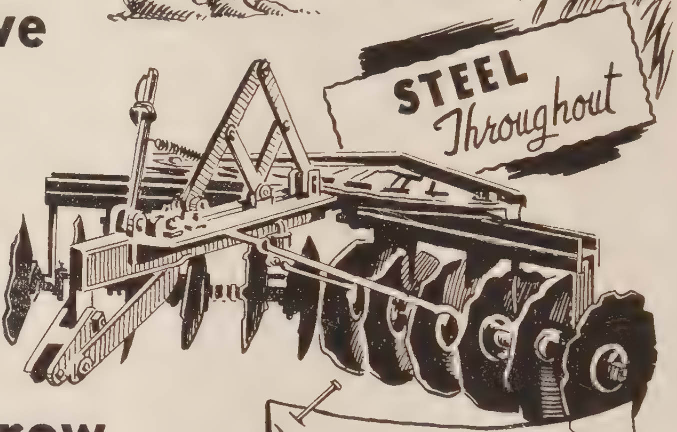

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## STUDIES IN FARM MANAGEMENT

# A Southland Chewings Fescue Farm

THE production of chewings fescue seed is of considerable economic importance to many farmers in the southernmost province of this Dominion. The saving of this seed calls for considerable skill and judgment. Practically all of it is exported, and is used extensively for the turfing of recreation areas and the grassing of aerodromes. The development of production from a few sacks to nearly 1,000 tons a year in the course of just over 50 years is a remarkable achievement, and indicates the high opinion in which this seed is held by the overseas buyer. This article describes a Southland farm where the main production is chewings fescue seed.

*By* **W. FAITHFUL,** *Fields Instructor, Gore.*

ALMOST surrounded by the rugged mountain ranges and hills of Central Southland lies a very irregularly-shaped tract of country, home of chewings fescue seed production. The boundaries of this belt of country lie between Te Anau Downs in the north-west, down the Waiau River Valley to Blackmount Station in the south-west, then across to the Wendonside district in the south-east, and over the Garvie Mountains to the Garston district in the north-east. Within this area, which is intersected by several large rivers and ranges of hills and mountains, approximately 11,000 acres are devoted every year to the production of chewings fescue, or fescue as it is locally termed. The average Dominion acreage is 12,000. Sporadic attempts have been made to grow this crop in various parts of New Zealand, even as far north as Auckland, but the major area remains in Southland.

## *Fescue Country and Soil Type*

The area located within the boundaries mentioned above contains many thousands of acres which are unsuitable for cultivation, being sheep runs and high mountainous country. The fescue seed is produced in the valleys of the Waiau, Aparima, Oreti, Waimea, and Mataura Rivers and their old courses and extensive flood plains. Chief of these old flood plains is the Five Rivers Plain in the Lumsden-Mossburn district, and the Waimea Plain extending southward from Lumsden to the Riversdale district.

The elevation of this fescue-producing land ranges from 400ft. to over 800ft. above sea level. The soil type is a very shingly silt loam on the more recent flood plains, improving to a deeper and rather stronger silt loam on the margins of the earlier flood plains. Here the country is slightly more undulating, and incidentally it is on this type of country that the production of this seed was first undertaken.

## *Climate*

The climate of the fescue-producing country is influenced to a great extent by the surrounding mountain ranges. The winter months are usually very cold and bleak, and heavy falls of snow are experienced. The summer is comparatively short in duration and the weather hot and dry. During this period the plains are subject to strong westerly gales. Although it is rather extreme, this climate appears to be admirably suitable to the production of the seed, except that the summer gales make the harvesting of the crop somewhat hazardous. The rainfall is between 23 and 30in. a year and usually the period of heaviest rainfall is during the late spring and early autumn.

## *Development of Production*

Before considering details of the management of a fescue seed producing farm, it will probably be of interest to outline the history surrounding the development of production in just over 50 years from a few sacks to nearly 1,000 tons a year.

In 1880 a farmer in the Rimu district of Southland sowed down in grass a two-acre paddock. He was probably quite unaware that this common farming operation was destined to open up a new avenue of export for primary produce, which was to be of considerable financial benefit to a large number of farmers in the province. Such however was the case, because the grass seed he used in the sowing out of the paddock was later to be known as chewings fescue. The origin of the seed is obscure. In a pamphlet issued by the New Zealand Grain, Seed, and Produce Merchants' Federation, "Grasslands of New Zealand," reference is made to the origin of chewings fescue. It states: "The imported seed which originally produced chewings fescue was some type of fescue grown in Europe, and it is claimed by some that the seed was dropped from grasses used to pack goods coming to New Zealand." Another more likely explanation of the origin is that the seed was supplied in a lawn grass mixture obtained from Messrs. Hurst and Sons, London, and that this mixture was sown by the Rimu farmer, as he required a grass that would make a dense sward quickly, and would not be poached up by cattle. The mixture is said to have been recommended to him by an Invercargill seed merchant. Whatever its origin, most of the reports regarding the development of the production of the seed during the years following the original sowing more or less substantiate one another.

**The small paddock was harvested for seed, and later on some, if not all, of this seed was used for sowing in some of the paddocks on "Glenelg," a property in the Mossburn district of Southland. In 1887 this property was bought by Mr. George Chewings, and the first considerable quantity, about 80 sacks of seed, was harvested in 1890. The following year about 250 sacks were harvested and sent in for cleaning. By this time the production of the seed had attracted neighbouring farmers, and in the next season over 600 sacks were sent to Invercargill to be dressed.**

### *Disposal Difficult*

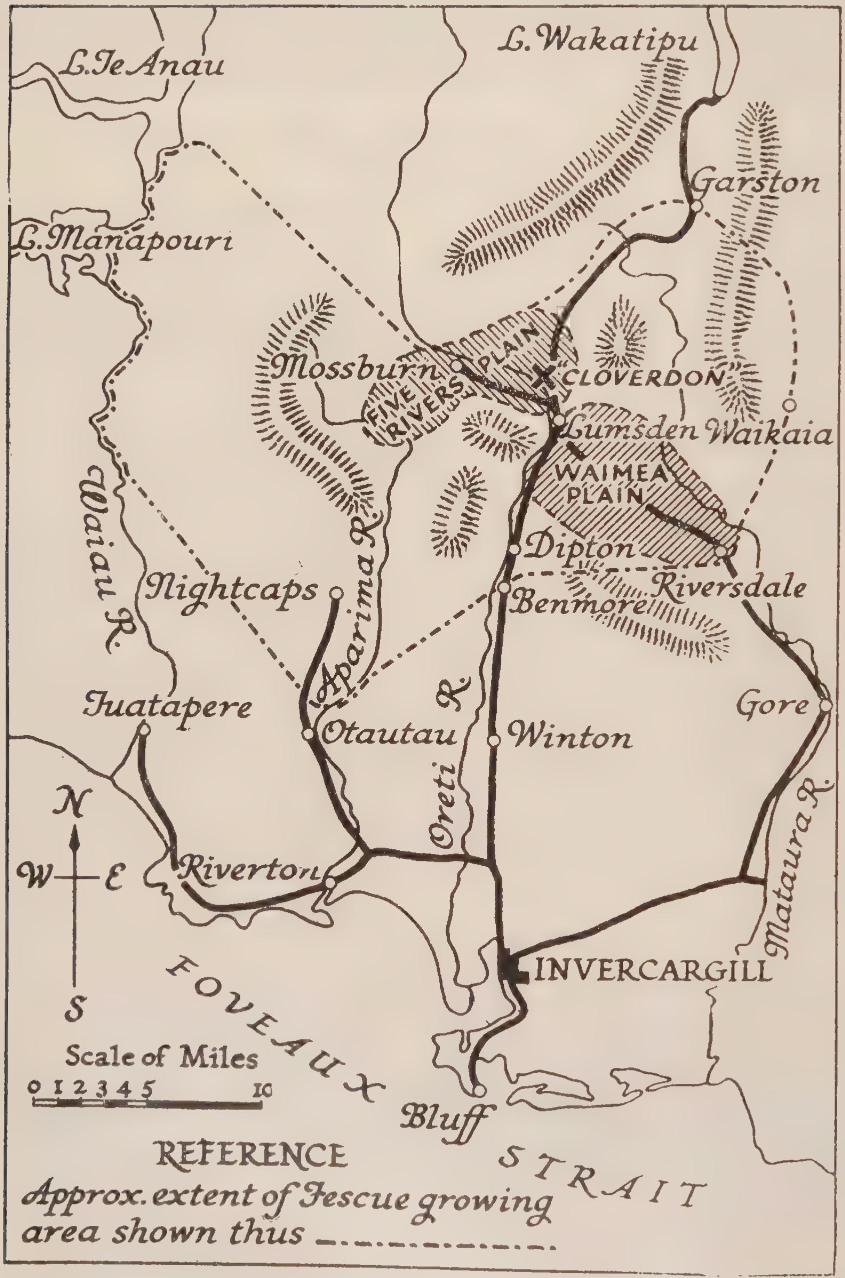
During this early period it appears that all the seed produced had been purchased by one seed merchant, and with the increase in the number of farms producing, and the larger quantity of seed to be dealt with, some difficulty was being experienced in disposing of it. However, about this time Mr. Chewings went to the North Island on holiday, and during his trip advised various runholders to try some of his fescue seed, as he thought it would probably be suitable for the pumice lands of Auckland. The result was that enquiries were received in Invercargill for samples of and quotes for "Chewings' fescue," and the seed has been called chewings fescue since.

As a result of the difficulty in placing the increased quantity of seed being produced the 600-odd sacks were taken over by Messrs. Tothill, Watson and Co., seedsmen, of Invercargill, who were agents for Messrs. Sutton and Sons, Reading. It was through the efforts of these two firms that interest was aroused in chewings fescue at Home, and the foundation of an export trade was laid. The fame of this fescue has not, however, been confined to Britain. Before the 1914-18 war much of this seed was exported to Germany, and of later years the U.S.A. has been one of our best customers. Some idea of its popularity may be gained from the fact that in about 55 years the quantity produced increased from 80 sacks yearly to 748 tons in the 1943-44 season. Practically all of this seed is exported, and in 1936 1,072 tons were sent overseas.

### *District Farming Practice*

During the course of the years there has been a gradual change in farming practice throughout New Zealand, and the fescue seed producing district is no exception. In earlier times the farms in the district were not closely subdivided, and extensive areas were sown every year in oats. Not infrequently crop after crop was taken from the same area. The fact that the yields from these successive crops were high, up to 60 and 80 bushels per acre being fairly common, indicates that the fertility stored in the virgin soil was high, as no artificial fertiliser was used. The price the farmer received for these oats was about 1s. per bushel, and, of course, there was the necessity for ploughing and cultivating the land each year.

The introduction of fescue was decidedly advantageous, even although the seed was sold for about 2½d. per lb. ex mill. This crop, once sown, could be harvested for a number of years without the necessity for resowing, and so it came about that fescue was sown on large areas which had previously been used for growing oats. Later, however, fat lamb production became attractive, and, as much of the land which had been producing fescue seed was, with the aid of lime and artificial fertiliser. able to carry better-class pastures, a further change was brought about. Instead of the farms being mainly arable and fescue seed producing, more and more attention was paid to sheep farming, and the fattening of lambs. The result of these changes



X indicates location of farm on Five Rivers Plain.

was that many farms were more closely subdivided, and the acreage of fescue per farm considerably reduced.

At present the extensive blocks of fescue are mainly on land which it is considered cannot be economically raised to a sufficiently high standard for lamb fattening. It must not, however, be concluded that all the fescue is produced on low fertility land. Actually, quite a large proportion of the fescue seed is being grown on comparatively high fertility paddocks, but usually these paddocks are only a very limited part of the individual farm. The seed is regarded as a cash crop, or as one farmer has expressed it: "Seeding fescue on this type of land is bad farming according to present day farming practice, but the return from a good crop is a good 'lift.'"

## Farm Management

Various methods are employed in the management of fescue-producing areas. Some farmers graze the fescue, others do not. Some find that it pays to topdress, while the response from an application of artificial fertiliser elsewhere is poor. The variation in management is usually relative to the fertility of the particular paddocks, and the condition of the fescue stand. One of the best examples of a farm still having an extensive area of fescue is that of Mr. G. A. Hamilton, "Cloverdon," Lowther. This farm is situated about 5 miles north of the township of Lumsden, on the Five Rivers Plain. The total area is 2,553 acres subdivided into 14 paddocks, and carrying 2,000 cross-bred Romney ewes, 500 hoggets, 30 flock rams, 100 head of cattle, and a 6-horse team. (During the latter years of the war the number of ewes has been reduced to 1,000, but this fact is dealt with later in this article). The soil types of this farm range from a shingly silt loam to a more alluvial deposit. In the very dry summer months the more open shingly land is prone to dry out rather severely, but it recovers quickly after rain.

**TABLE SHOWING ACREAGES AND YIELDS OF CHEWINGS FESCUE ACCORDING TO DISTRICTS, 1934-1944.**

**Adapted from Agricultural and Pastoral Statistics.**

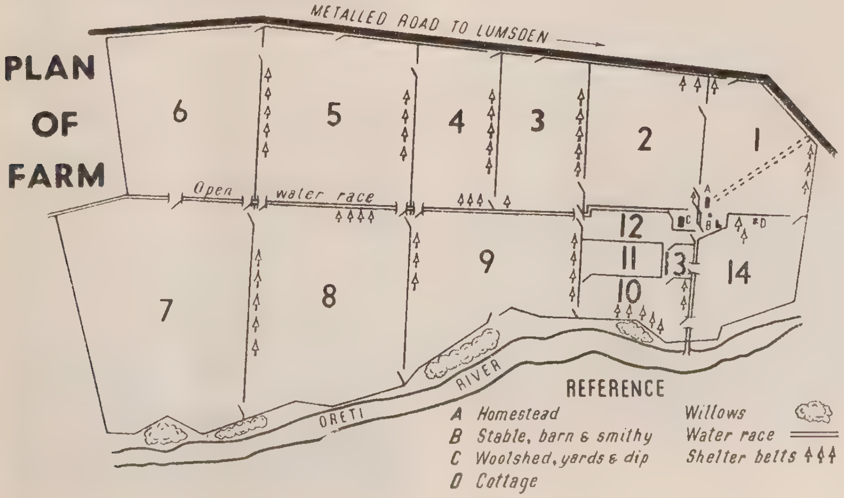
| Season. | South.and | Otago | Canterbury | Other Districts | Total Acres | Total lb. |
|---|---|---|---|---|---|---|
| 1943-44 | | | | | | |
| Acres .. | 11,191 | 664 | 151 | 30 | 12,036 | |
| Yield per acre .. | 140 | 136 | 69 | 100 | | 1,676,557 |
| 1942-43 | | | | | | |
| Acres .. | 13,841 | 847 | 285 | — | 14,973 | |
| Yield per acre .. | 179 | 190 | 127 | — | | 2,681,369 |
| 1941-42 | | | | | | |
| Acres .. | 13,074 | 741 | 70 | 15 | 13,900 | |
| Yield per acre .. | 173 | 168 | 150 | 66 | | 2,407,346 |
| 1940-41 | | | | | | |
| Acres .. | 14,309 | 645 | 88 | 9 | 15,051 | |
| Yield per acre .. | 168 | 203 | 113 | 131 | | 2,552,255 |
| 1939-40 | | | | | | |
| Acres .. | 12,551 | 811 | 484 | 59 | 13,905 | |
| Yield per acre .. | 182 | 189 | 99 | 119 | | 2,501,828 |
| 1938-39 | | | | | | |
| Acres .. | 10,944 | 460 | 197 | 7 | 11,605 | |
| Yield per acre .. | 167 | 83 | 162 | 242 | | 1,906,898 |
| 1937-38 | | | | | | |
| Acres .. | 7,595 | 514 | 50 | 3 | 8,162 | |
| Yield per acre .. | 121 | 130 | 104 | 200 | | 995,240 |
| 1936-37 | | | | | | |
| Acres .. | 10,757 | 621 | 45 | 44 | 11,467 | |
| Yield per acre .. | 156 | 134 | 139 | 79 | | 1,779,420 |
| 1935-36 | | | | | | |
| Acres .. | 12,560 | 686 | 502 | 20 | 13,768 | |
| Yield per acre .. | 180 | 92 | 53 | 207 | | 2,365,951 |
| 1934-35 | | | | | | |
| Acres .. | 10,497 | 439 | 337 | 21 | 11,294 | |
| Yield per acre .. | 107 | 91 | 144 | 95 | | 1,214,230 |

## Crop Rotation

The life of pastures on this farm is between 8 and 10 years, and as the winter dormant period is prolonged ample provision has to be made for winter keep. Approximately 150 acres are broken up each year for turnips, and 100 acres for lamb-fattening feed, 100 acres of fescue are renovated, 50 acres of fescue ploughed under and bare fallowed, and 40 acres of grain grown. These acreages are very approximate, as the area of land under the plough depends to a great extent upon the condition of the fescue area. A fairly normal procedure is for the lea land to be ploughed in May with a swamp plough. As soon as possible in the spring this land is disced and cultivated, and thoroughly worked till the time for sowing either in lamb feed or turnips for the following winter. The following season either wheat or oats is sown or part of the area may be fallowed according to the state of the land. In the third season a pasture mixture is sown under lamb feed. Particulars of the paddocks in the 1944-45 season are as follows:—

| Paddock No. | Acreage. | |
|---|---|---|
| 1 .. | 132 .. | Pasture |
| 2 .. | 171 .. | Pasture |
| 3 .. | 150 .. | Fescue |
| 4 .. | 150 .. | Certified cocksfoot for seed, 1946. |
| 5 .. | 360 .. | Fescue |
| 6 .. | 140 .. | Fallowed |
| | 190 .. | Lamb feed |
| | 25 .. | Oats |
| 7 .. | 200 .. | Old fescue to be ploughed up after 1946. |
| | 80 .. | Turnips |
| | 60 .. | Fescue |
| | 60 .. | Oats |
| 8 .. | 240 .. | Old pasture |
| | 100 .. | Turnips |
| 9 .. | 205 .. | Pasture |
| 10 .. | 81 .. | Pasture |
| 11 .. | 34 .. | Pasture |
| 12 .. | 35 .. | Pasture |
| 13 .. | 12 .. | Pasture |
| 14 .. | 128 .. | Pasture |

It will be observed that complete paddocks are not necessarily broken up. It depends largely on the condition of the pasture.



## Implements

To cope quickly and efficiently with the cultivation work a comprehensive range of implements is maintained. These include:—Two tractors (1 track-laying, 40 h.p., and 1 wheeled tractor); 3 drills (1 17- and 2 15-coulters); 2 swamp ploughs (1 d.f., 1 s.f.); 3

## SCENES IN FESCUE-PRODUCING DISTRICTS

Upper—Upper Mataura River Valley. Middle—Mossburn. Lower—Waimea Plain.

ploughs (1 4 f., 1 3 f., 1 d.f.); 3 sets discs; 2 sets 24ft. tine harrows; 3 grubbers (stiff tine); 3 rollers (1 6 tons concrete, 2 Cambridge); 1 clod crusher; 1 set tripod harrows; 1 3-row ridger; 1 scuffler; 4 binders (1 10ft., 3 8ft.); 2 swathers (12ft.); 2 sets chain harrows; 1 7ft. power mower; 1 side rake and tedder; 1 hay sweep; 1 pick-up baler; 1 header harvester; 2 topdressers; 1 3-ton lorry; 1 1-ton truck; 2 trailers; and a 2-stand shearing plant.

There is a smithy on the farm for maintenance of this equipment.

### *Turnips*

Hardy Green Globe turnips are sown in December in flat drills (through every second coulter of the drill) at the rate of 11oz. per acre. Before the war, either yellow flesh turnips and/or swedes were ridged, but because of the shortage of labour, and the consequent inability to keep the crop cleaned and thinned, Hardy Green Globe turnips have been used satisfactorily. It is found that these keep quite well until the end of September. The turnip crop is fed off in breaks, commencing about the end of June.

### *Lamb Fattening*

All lambs are got away fat off feed. The following mixture is sown during the first three weeks in November: B.L.E. rape ½lb., soft turnips 4oz., blue lupins 1lb., mustard 4oz., oats 6lb., per acre. This is mixed with superphosphate and lime and drilled in. Usually the sowing of the lamb feed is done in 3 to 4 blocks to coincide with the rape being ripe as required for the lambs. The usual practice is for the best of the lambs to be put on to feed for 10 to 14 days to top them off, thereafter the area is fed off in breaks. In addition to the lambs bred on the

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farm an additional 800 to 1,000 forward wether lambs are bought in and fattened every year.

### *Grain*

Oats are usually sown in the autumn at the rate of 3 bushels per acre, 2 bushels for Dun oats. Yields are in the vicinity of 60 bushels. The bulk of this crop is threshed, and sufficient for the 6-horse team is stacked for chaff.

### *Pastures*

All pastures are sown under the lamb feed previously mentioned. The usual grass seed mixture is as follows:

| | lb. |
|---|---|
| Certified perennial ryegrass | 20 |
| Certified cocksfoot | 6 |
| Timothy | 2 |
| Crested dogstail | 1 |
| Certified white clover | 2 |
| Montgomery red clover | 2 |
| Per acre | 33lb. |

This is sown from the grass box on the drill.

### *Pasture Management*

Prior to and during the early years of the war, the pasture growth was managed by a system of controlled grazing, the sheep being shifted and the cattle used as followers to clean up any roughage. If necessary, the paddocks were topped with the mower. During the latter period of the war this system was discontinued.

It was decided when Mr. Hamilton's son went into the Army that the 3,000 sheep from the son's farm should be wintered at "Cloverdon." For this reason the ewe flock has been reduced from 2,000 to 1,000 and consequently the pastures are allowed to "get away" to supply rough feed as run off for the extra number of sheep on turnips.

### *Flock Management*

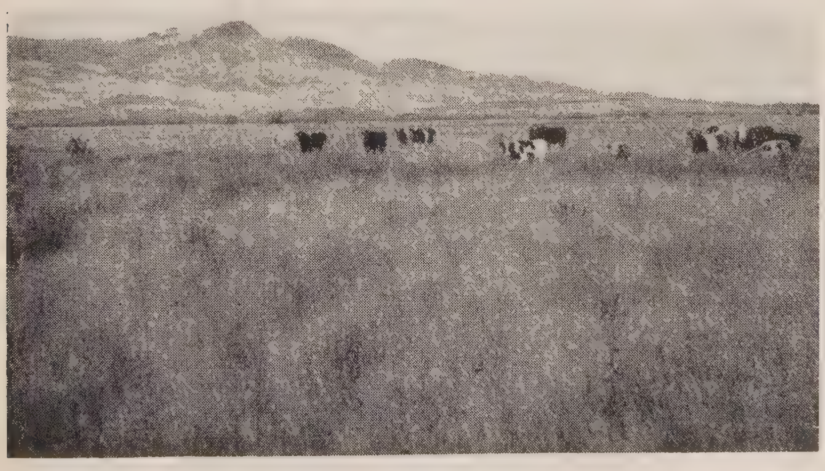
Typical shingly silt loam soil type of fescue paddocks at "Cloverdon." This paddock is being fallowed.

Lambing commences about October 1, and the lambs are weaned about the last week in February. It is usual to keep 500 selected ewe lambs for flock replacements. Cull ewes are all fattened on the pastures.

The wool clip averages 8½lb. per sheep, and about 55 bales of fleece wool are produced each season.

### *Grass and Clover Seed Crops*

It is generally found possible to close up an area of the pasture land for seed production, and almost every season either ryegrass, white clover, red clover, or dogstail are saved for seed. The average yields per acre are ¼ bag white clover, ½ bag dogstail, 1 bag red clover. Sufficient ryegrass is seeded for resowing on the farm each season, and during the present season 150 acres of cocksfoot will be seeded.



A few of the beef cattle used for grazing pasture roughage at "Cloverdon."

### *Fescue Crop*

**The production of fescue seed is one of the most important factors in the economy of the farm, and consideration of this crop to a great extent influences decisions regarding the acreage of land under the plough, and such other crops as grain or grass or clover seed harvested in any season.**

The average life of a fescue stand is about 10 years, but in the past there have been paddocks down for 20 years. The useful life of a fescue area is determined by the ingress of weeds, such as browntop, sweet vernal, catsear (known locally as cape weed), and Yorkshire fog.

### *Preparation and Sowing*

It is essential that fescue is sown on clean land, and that no attempt is made to sow until the paddock has been cropped and fallowed. The usual rotation is for an old paddock to be ploughed in May with a swamp plough using "cut coulters." These coulters are offset to under-cut the land side of the furrow which is then turned over quite flat. The land is fallowed for 18 months and then sown in lamb feed or turnips. Grain or lamb feed is sown in the following season and finally the fescue sown under lamb feed the following November. The seeding rate is 14lb. per acre machine-dressed fescue, drilled in, through every coulter of the drill. On some farms the fescue is sown broadcast at 18 to 20lb. per acre.

### *Management*

Fescue paddocks on this farm are not used for grazing. A newly-sown area is used for lamb fattening till

# RENOVATING FESCUE

Left—Dense fescue sward requires renovating. Right—The renovated fescue. The fescue comes up between the furrows, provided the skimming has been properly done.

Left—Renovated fescue in the Wendonside district. Right—Renovated fescue showing ingress of sweet vernal, catsear, and browntop.

about May, but after May it is kept entirely for seed production. On some farms in the fescue country, particularly on higher-fertility land, the fescue paddocks are grazed and seeded in alternate seasons. This is done to control the ingress of weeds. The grazing animals tend to graze the weeds and more palatable grasses and leave the fescue to stool out. The stand is thus maintained for a longer period than would be the case without grazing.

At "Cloverdon" it is the usual practice, after the finish of the grazing of the lamb feed towards the end of May, to take a seed crop in the following harvest period (December). The yield from this harvest is about 1 bag per acre. Generally the fescue stand is harvested for seed about five consecutive times, after which it is found that the seed crop is too light to be payable and renovation is then necessary.

**Sheaf trolley used for leading in fescue. Three sides are built up to facilitate loading and as a protection from wind during harvest. Photo taken on farm of Mr. G. P. Chewings, "Glenelg," Mossburn.**

## *Topdressing*

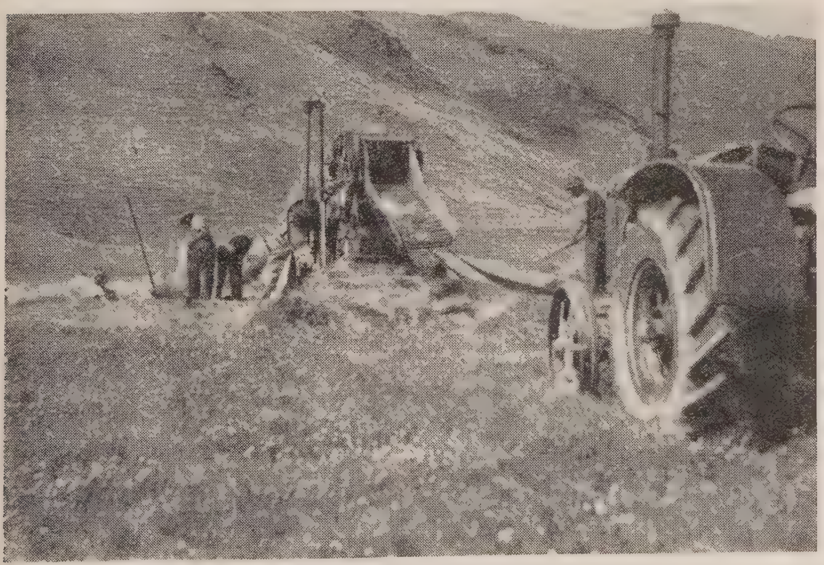
The results from topdressing fescue have been a matter of debate for years. There have been very profitable returns from paddocks topdressed with sulphate of ammonia or ammoniated superphosphate, and there have also been very disappointing results. Advantage from topdressing depends largely on the weather conditions following the application. There must be sufficient moisture to ensure benefit from the fertiliser. Applications of nitrogenous fertiliser have been made at "Cloverdon," but Mr. Hamilton does not consider that the results on his land were sufficiently encouraging to justify a continuation of the practice.

## *Renovation*

The growth habit of fescue is "twitchy," that is, it has a creeping rooting system which produces a dense close turf. This habit of growth is the reason for its popularity as a lawn grass, but it is a disadvantage from the seed producers' point of view, as the area tends to become "turf bound" and will not produce seed. To overcome this the paddock is renovated by skim ploughing. Skill is necessary both in the actual job and also in deciding when it shall be undertaken. If the skimming is delayed till such time as there is much browntop or Yorkshire fog the renovation will increase rather than decrease these weeds.

The skimming is undertaken in August-September when the frost risk has passed, as frost breaks up the furrow and kills the fescue. The depth and width of the ploughing are regulated to ensure that the furrow does not break, and it must be well "set up." If turned over too flat the fescue will not survive; the need for skill is obvious. When the work is completed the fescue comes away between the furrows in the spring.

No seed is harvested in a renovated area in the harvest following renovation. Subsequent crops are harvested till such time as the stand becomes too weedy to be a payable crop, or if the fescue is remaining pure, further renovation may be undertaken, depending on the state of the paddock. On stony or uneven ground the skim ploughing is rolled to even it.



**Threshing fescue in Nokomai district.**

## *Control of Weeds*

The most objectionable weeds in fescue are catsear (*Hypochaeris radicata*), sweet vernal (*Anthoxanthum odoratum*), and hairgrass (*Festuca bromoides*). The worst of these is catsear, the seed of which is the same size and weight as the fescue, and cannot be removed by either riddles or cylinders on the dressing machines. Sweet vernal and hairgrass are removed by placing felts or blankets on the riddles. The awns of these two seeds cause them to adhere to the felt as they pass over and are thus removed. To control catsear it is usual to run a few sheep on the fescue paddock, about one sheep to 3 or 4 acres being sufficient. The sheep keep the heads nipped off, and therefore prevent seeding. They are taken out about a week before the flower goes off the fescue to avoid damaging the crop. Ryegrass in a stand of fescue is mainly controlled in the same manner.

### *Harvesting*

The harvesting of fescue calls for a great deal of judgment and experience. The seed is very easily shaken, and as it is necessary to cut it almost to the day, the size of the area to be dealt with must be taken into consideration. The seed trade requires seed of good colour and heavy bushel weight. Good fescue seed weighs 23 to 24lb. to the bushel, and extra good seed up to 28lb. The colour of good seed is steel blue. To have both these desirable qualities the seed must be permitted to become as ripe as possible before cutting. In the days before tractors up to 15 or 20 binders were worked on a large fescue area at the one time.

### *Swathers*

On this particular farm swathers have been used for many years. There are two on the property, each of which has a 12ft. cut. The function of the swather is to cut the fescue just below the head, the cut material being swept back by the reel on to a large platform which has three sides about 4ft. high but no top. A man travels on the platform and forks the cut material back till the platform is full. It is then unloaded from the rear and bagged. The full sacks are left standing in the paddock for about 3 weeks, by which time the contents are quite dry and ready to be threshed. Each swather will cut about 4 acres per hour.

### *Binder Cutting*

As a general rule the fescue crops are cut with the binder. Renovated paddocks are cut in the same direction in which they were ploughed. Direct heading, although it has been done, is not common. To do this satisfactorily the crop has to be left till almost dead ripe. This is very risky owing to the uncertainty of the climate, as a strong wind will shake all the seed. If the heading is undertaken too early the seed will heat in the sacks. Binder cutting is, therefore, the more satisfactory of the two methods.

With the extensive acreage harvested every year both swathers and binders are used at "Cloverdon." The crop is stooked immediately after the binders and remains in stook for about three weeks. It is threshed out of stook, and, as the seed sheds very easily, particularly at this time, special care is necessary in forking the sheaves, because much seed can be lost through careless handling. It is usual for the complete stook to be picked up bodily by a forker at each end and placed on a specially-constructed trolley. These trolleys are large editions of the ubiquitous "konaki," two wheels at the back and a sledge front. A wooden frame is built up about 3ft. high around the sides of the trolley, and on the frame is attached a sheet made from opened-up sacks. The sheet is attached to the top of the frame and covers the platform, so that the seed falling from the stooks as they are placed in the trolley is collected, and afterwards put through the mill.

Fescue is very easily threshed, and as soon as possible after threshing the seed is sent in to be machine dressed.

### *Yields and Prices*

The average yield of fescue seed in Southland is 150lb. of machine-dressed seed per acre. Crops have a wide range, and vary from 1 sack to 8 or 9 sacks per acre. It is usual for farmers to refer to yields as so many bags of seed, and this reference is to the number of bags off the mill, not the machine-dressed result. The best yields are obtained from first and second cuts, as these are usually clean. With increasing age the stand becomes more weedy, and the tendency is for the quantity of fescue seed to decrease.

Approximately 60 per cent. of the seed is bought by the seed merchants on a field-dressed basis, the price ranging from 7½d. to 1s. 6d. per lb. and averaging about 1s. per lb. The price range for machine-dressed seed in the 1944-45 season was from 1s. 6d. to 2s. 4d. per lb. During the 1931-32 season the price was 1½d. to 2½d., and it was difficult to dispose of seed even at this price.

### *Export Market*

Unlike most other grass seeds, chewings fescue is not used much for pasture land. This grass, which is known botanically as *Festuca rubra* (var. *fallax*), is capable of producing a dense and even turf which will stand hard treatment, two features which are necessary on recreation areas of all kinds. The tennis courts at Wimbledon, London, where the International Tennis Championship matches were played, were turfed with chewings fescue as also was Lord's Cricket Ground. The seed is

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also used extensively for race tracks and golf courses, and during the war large quantities were used in the preparation of aerodromes.

Despite certain weaknesses in loss of germination during transit, which are not dealt with in this article, this fescue is highly regarded overseas. The export market requires a minimum purity of 98 per cent. and germination 90 per cent. The export figures for the last 10 years are as follows:—

| Year. | Tons. | Value £N.Z. |
|---|---|---|
| 1936 | 1,072 | 96,480 |
| 1937 | 669 | 78,464 |
| 1938 | 580 | 103,792 |
| 1939 | 656 | 122,331 |
| 1940 | 874 | 129,694 |
| 1941 | 944 | 123,601 |
| 1942 | 743 | 101,509 |
| 1943 | 888 | 142,166 |
| 1944 | 530 | 125,918 |
| 1945 | 947 | 273,497 |

**From these figures it would seem that we have an established market for chewings fescue, but determined attempts have been made during recent years to produce this seed overseas, particularly in the U.S.A. This work is still being carried on, and the question now to be faced is: Can we continue to compete?**

### *Acknowledgments*

Thanks are expressed to Mr. G. P. Chewings, "Glenelg," Mossburn, for verification of the early history of chewings fescue, to the Lands and Survey Department for the drawing of maps, to the Customs Department for figures in connection with exports, and to members of the seed trade in Southland for furnishing information at various times.

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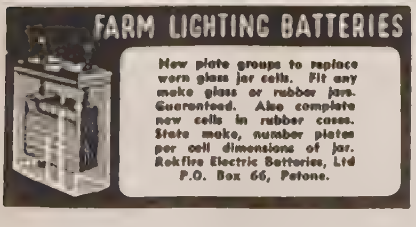

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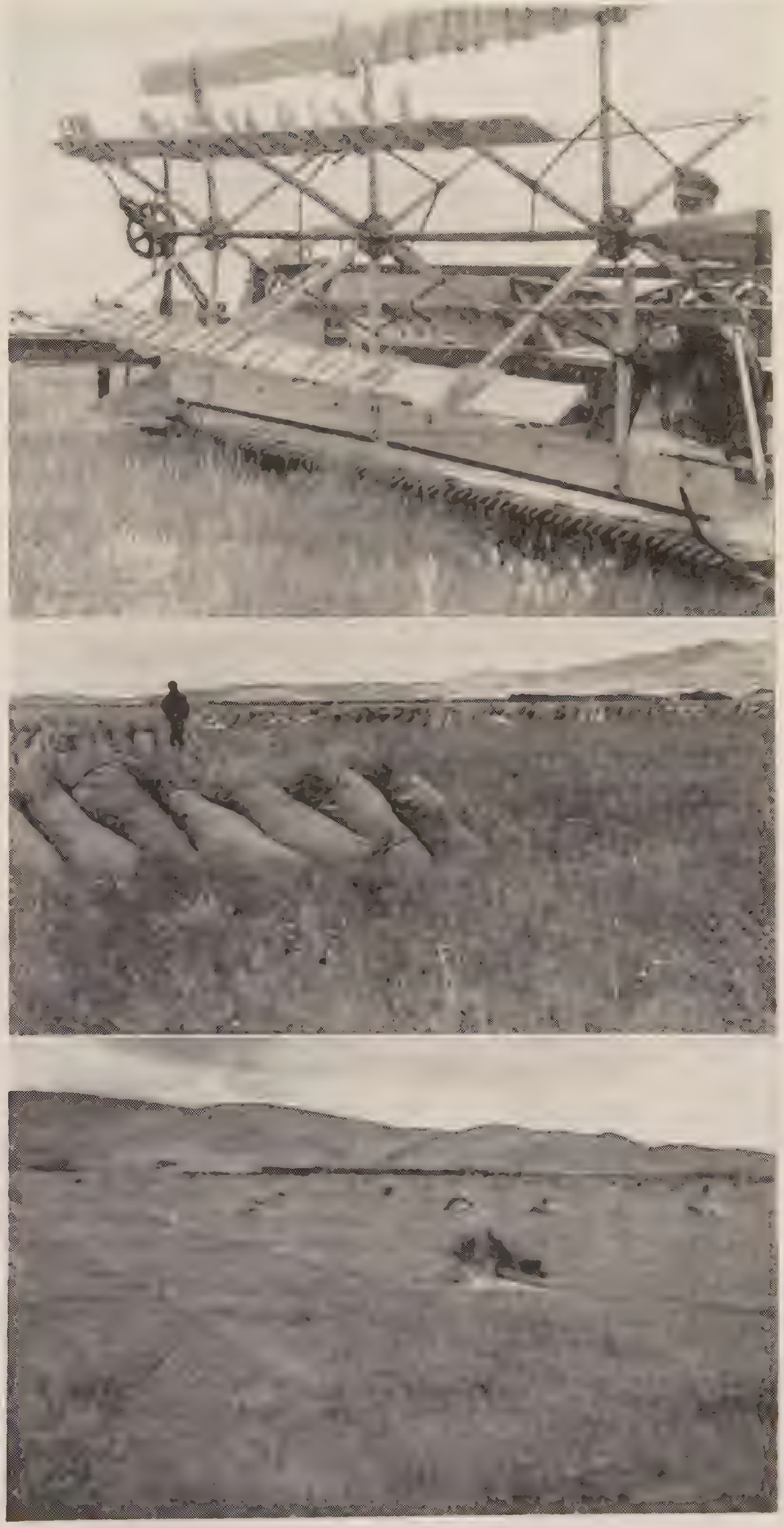
## HARVESTING FESCUE



Upper—Views of the swather used for harvesting fescue at "Cloverdon." Middle—Bagged heads taken from the swather drying in the paddock. The crop illustrated is cocksfoot, not fescue. Lower—Fescue in stook at "Cloverdon."

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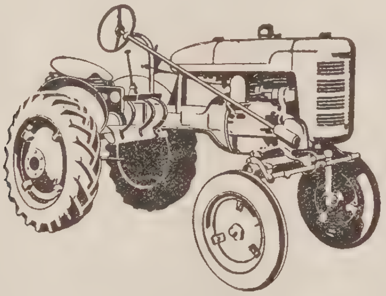

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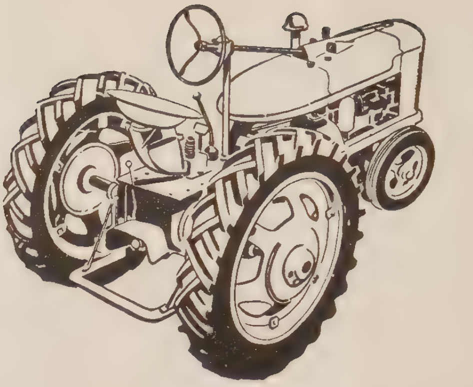

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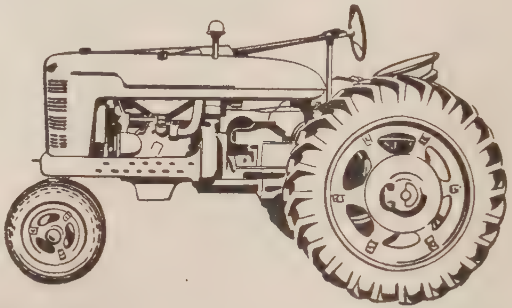

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# Spray Citrus Trees in Early Winter to Avoid Loss of Fruit

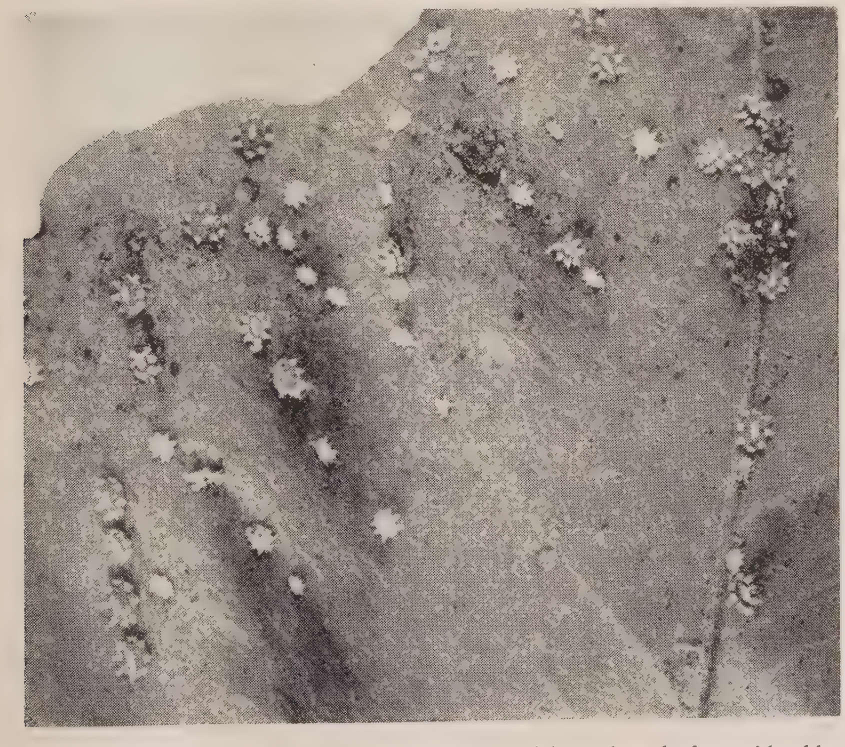
*By* P. EVERETT, *Orchard Instructor, Kaikohe.*

**FAILURE to apply the necessary sprays to citrus trees during May and June may result in serious loss of fruit and tree vigour. The brown rot fungus *(Pythiacystis citrophthora)* seldom becomes troublesome before the last week in May but may not appear till July or August, and gradually disappears by the end of September. During this period, extensive defoliation and rotting of the fruit may occur if adequate preventive measures are not taken. Infection is spread from the ground to the lower branches, mainly by rain splashes, and in wet weather the disease may spread rapidly throughout the tree.**

CONTROL is readily gained by removing all branches within 18in. of the ground, and spraying the trees thoroughly with Bordeaux mixture 3-4-50. Tall weed growth under the spread of trees encourages the development of the disease by preventing the drying of the soil surface, and should be suppressed.

The first preventive spray should be applied during the last week in May or early June. Orchards infected earlier in the season should have the spraying date advanced. A second application four or five weeks later is necessary in some localities, specially in wet seasons.

Summer oil at a dilution of 1½ or 2 per cent. should be added to the first winter Bordeaux spray where the control of hard wax scale (*Ceroplastes sinensis*) is needing attention. (Illustrations of scale insects appeared in the February, 1946, issue of the Journal of Agriculture.) Though the oil serves as an efficient insecticide, it should be used in combination with Bordeaux mixture only when necessary, because of the difficulty of removing the spray residue from the fruit.



Young forms of hard wax scale *(Ceroplastes sinensis)* on citrus leaf, considerably enlarged.

## *Citrus Blast*

A bacterial disease liable to cause extensive injury to citrus trees during the winter and spring is citrus blast (*Pseudomonas syringae*). The organism is most troublesome in exposed orchards, and leaves, fruit, tender shoot growth, and even small branches may be attacked. Lemons are most susceptible to attack but oranges appear highly resistant.

The disease, which usually begins at an injury, causes irregular blackened areas on the leaves, mainly along the veins and mid-rib. On the fruit firm, black, circular, sunken areas are caused. Tender shoot growth often becomes infected when from three to six inches long and usually the entire shoot is killed. Such shoot infection is common on New Zealand grapefruit during September and October. The disease is most active after a sharp frost, and the killing of branches up to about the thickness of a lead pencil is not uncommon in the colder citrus areas. Such injury, however, is principally confined to lemon trees, and is readily recognised by conspicuous longitudinal deep cracks in the bark.

Control measures consist of spraying the trees thoroughly with Bordeaux mixture 3-4-50 about three weeks before infection is likely to appear, and removing and burning all infected material. Where sharp frosts can be expected early in the winter, the spray should be applied earlier than in areas that are almost frost free. If the disease is normally confined to the shoot growth it is best to apply the spray early in August.

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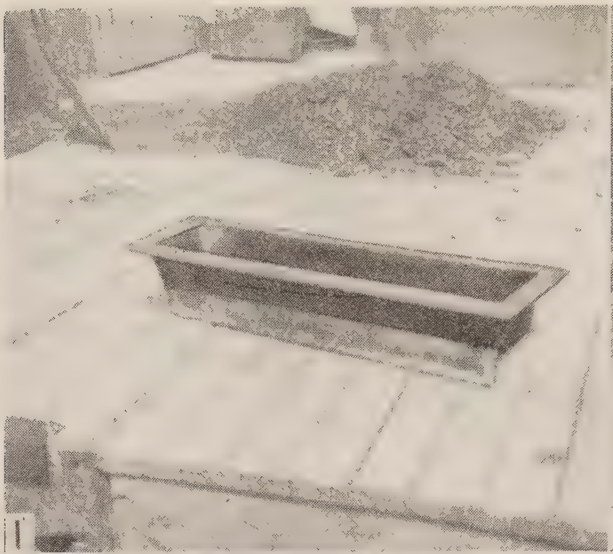
THE WORLD'S BEST MILKING RUBBERWARE

# CONCRETE HIVE STANDS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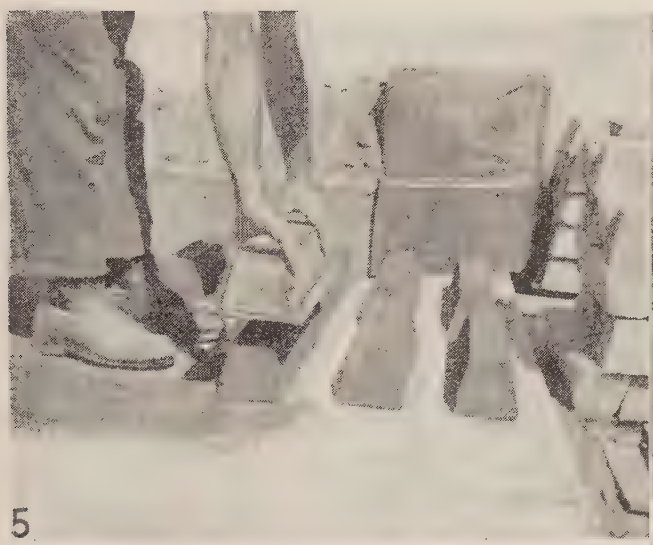
HIVE stands made of concrete have been popular with some beekeepers for many years, and instructions for their construction by the use of wooden moulds have been made available. Intensive development in building construction during the war, however, has evolved a new technique in the manufacture of concrete building blocks and bricks, and by means of a special metal mould, using a semi-dry concrete mix, blocks can now be turned out more rapidly than by former methods. Adapting this technique, beekeepers can now make up their requirements of concrete blocks for hive stands quickly.

Illustrations 1 to 6 indicate the method of manufacture. The metal mould is constructed of $\frac{1}{8}$in. boiler plate, as shown in sketch. Each part requires to be neatly pieced together and all welding done on the outside. The inside must be perfectly smooth, otherwise the blocks will not turn out true to shape. The mould should not be oiled but kept as bright as possible. Fine river shingle with plenty of sand should be used, and the mix made of 5 parts sand to 1 of cement. After a thorough dry mixing, a small amount of water, just sufficient to dampen the mix, is added. If too much water is used, the blocks will not maintain their shape when turned out of the moulds. On the other hand, if the mix is too dry, the blocks will not have the required strength and will crumble away when handled. Experience is necessary to determine the correct mixture.

The base of each block measures 19in. x 4$\frac{1}{2}$in., and the top 18in. x 2$\frac{1}{2}$in. The top side of each block,

Fig. 1—Metal mould with dry concrete mix in background.
Fig. 2—Mould is half filled with concrete, which is well rammed; lengths of wire may then be put in for reinforcement.
Fig. 3—Mould is filled up, the concrete given a final ramming, and smoothed over.
Fig. 4—Turning the mould over on to a level stand must be done quickly.

# MADE UP BY NEW METHOD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measured lengthwise, should be 2in. greater than the width of the hive floor-board, to allow for a small amount of movement when the hive is placed on the blocks.

A level floor is necessary for turning out the blocks to dry. After seven days' drying they can be stacked up and allowed to cure. Approximately 40 blocks can be made from one bag of cement, and one person should be able to make this number in 2 hours.

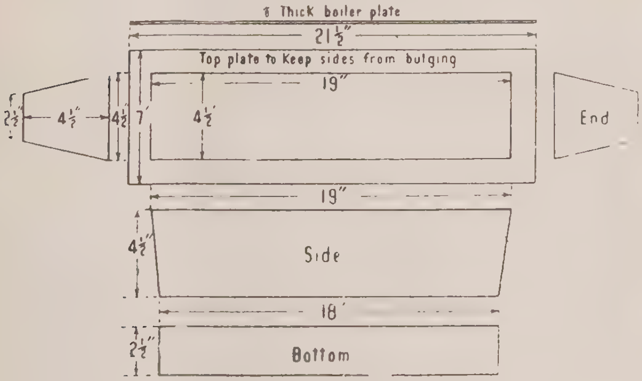
The success of turning out concrete blocks by the above method depends on the following:—

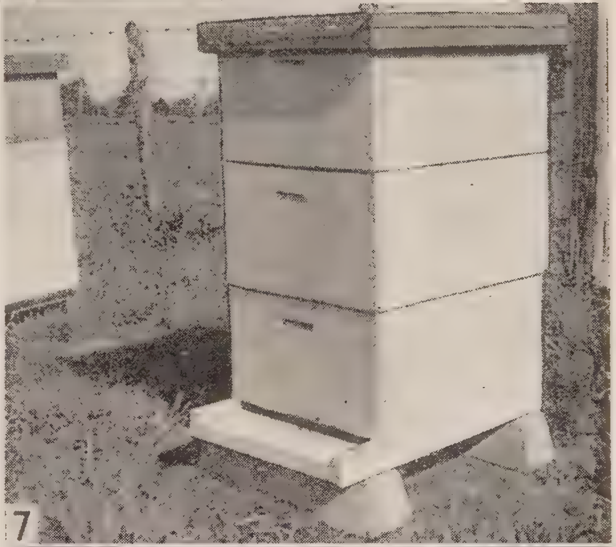
1. Have mould perfectly clean and bright.
2. Have concrete mix of the correct consistency.
3. Ram the mixture well into the mould, paying particular attention to the corners.
4. Turn mould over quickly.

Thanks are expressed to Mr. K. Harrison, of Tauranga, for particulars of the manufacture of these hive blocks and for his assistance in providing the material for photographing.

—*C. R. PATERSON, Apiary Instructor, Hamilton.*

Fig. 5—Metal mould being withdrawn from the concrete block.
Fig. 6—Blocks drying out before stacking.
Fig. 7—Blocks in use under a reversible floor-board.
Fig. 8—Blocks in use with another type of floor-board.

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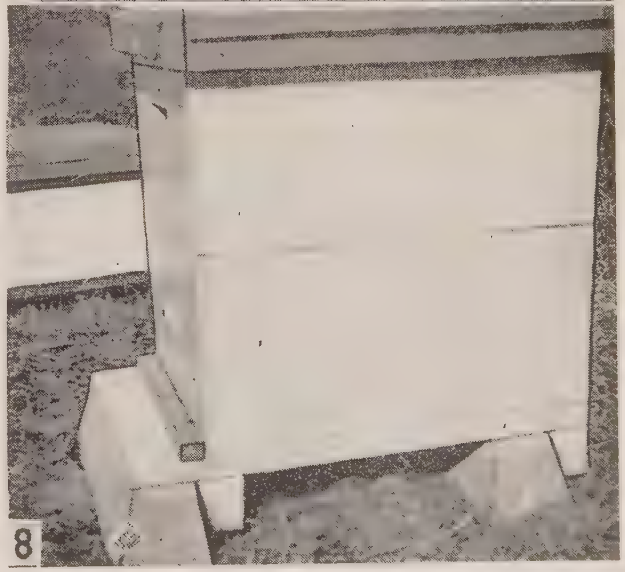
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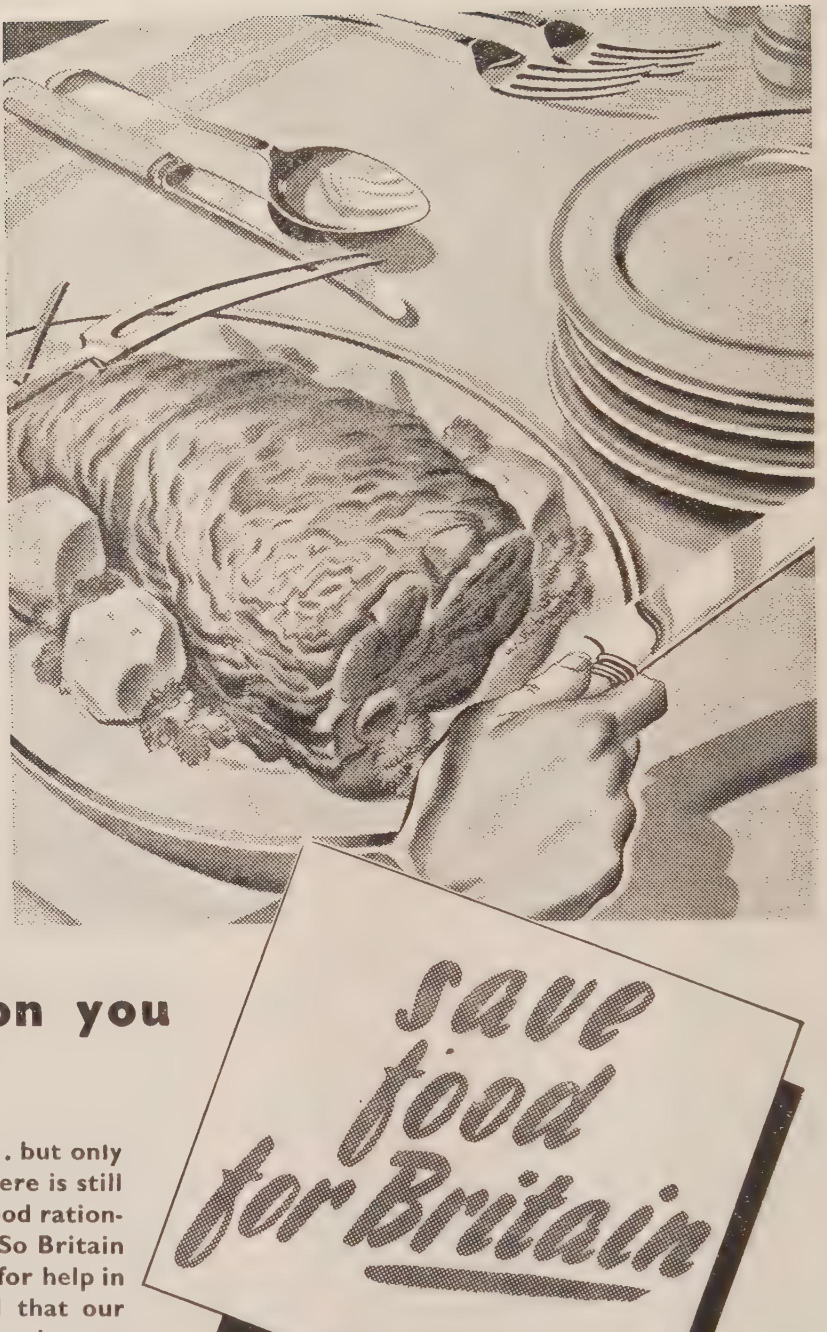
# when will peace and plenty come to BRITAIN?

## a lot depends on you



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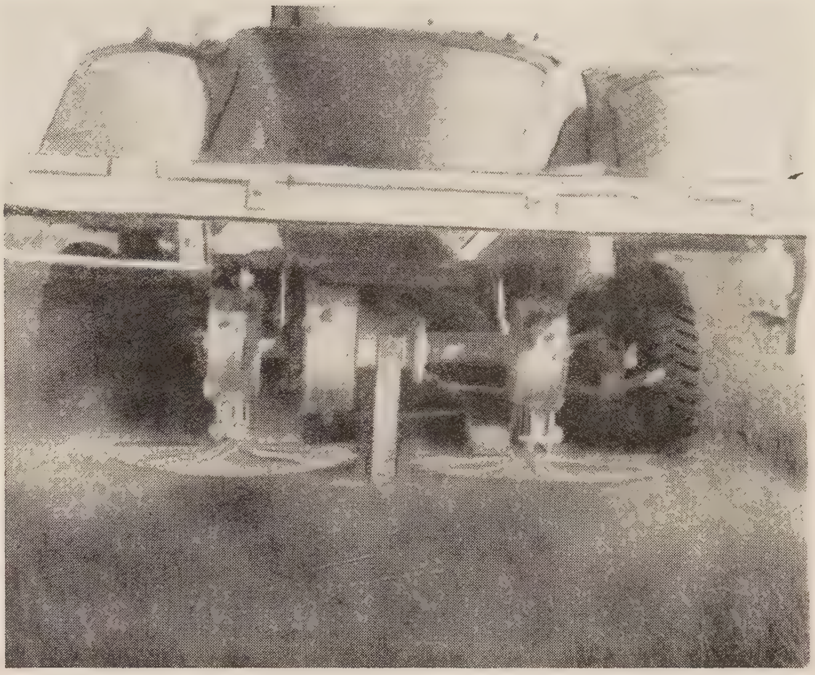
# LARGE-SCALE TOPDRESSING

By A. V. LITHGOW, *Fields Instructor, Palmerston North.*

**AN efficient rotary type fertiliser distributor for topdressing pastures with speed and accuracy, developed by a Feilding contractor in co-operation with a mechanical engineer, is described in the following article. The machine is admirable for large-scale distribution of lime and fertilisers, and is well suited for use by contract distributors on large estates where big quantities of fertiliser have to be taken delivery of and spread on to the land as quickly as possible.**



The distributor in action.

THE essential features of such a machine are:—

1. Sound mechanical construction and ability to stand up to hard work without hold-up by breakages.
2. Speed and ease of operation and adjustment in spreading a wide variety of fertilisers.
3. Efficiency in spreading fertiliser uniformly and at any desired rate per acre.

The machine illustrated and described here has all these features and would appear to be well adapted for the rapid and efficient spreading on the larger farms of the district of quantities of fertiliser ranging from 100 tons to 500 tons or more per farm. Some details of the machine are as follows:—

## *Construction and Design*

**Drive:** At a casual glance the topdresser appears very similar to any other of the single-bin lorry-mounted types in which the distribution is effected by rotating plates, but closer inspection shows many refinements. First, the usual chain drive has been eliminated. Any contractor or other operator of a chain-driven machine can tell of the endless trouble and breakages experienced when this type of drive is subjected to heavy, continuous work at the high speeds obtained in topdressing flat land by motor truck. This machine, however, is fitted to a tip truck, and the topdresser is driven from the power take-off of the tipping mechanism by a shaft running back beneath the floor of the truck, with two universals, to the main drive of the topdresser; in other words a similar drive is used to that which propels the lorry itself. Beneath the fertiliser bin a shaft leads both right and left, at right angles to the drive shaft, to the fans or discs which spread the manure, while a reduction through a worm gearing drives the agitator in the manure bin above. The fans revolve 65 times for every revolution of the agitator.

**All gears are totally enclosed, lubricated by oil bath, and all bearings are of roller type or sturdy ball races. A touch of the finger will start the fans revolving freely, which means that the power taken to drive the topdresser is very small, and that wear and tear on the driving mechanism is reduced to a minimum.**

**Feed:** The centre of the bin, rigidly mounted at the rear of the lorry, is taken up by a conical agitator, which extends to within about 2in. of the sides of the bin at the base. On the outer edge of the agitator are a number of strongly-built vanes just clearing the sides. These vanes force the manure evenly towards the feed chutes and their shearing action guarantees that no lumps will be left, to choke or check delivery. Even very lumpy manure is effectively and efficiently broken up. Adjustments to the rate of feed can be easily and accurately made by variable apertures at each side of the agitator. From these the manure is led down chutes to be distributed. The feed to the distributing discs is forced and definite, and variations in quantities per acre applied can be accurately and easily made.

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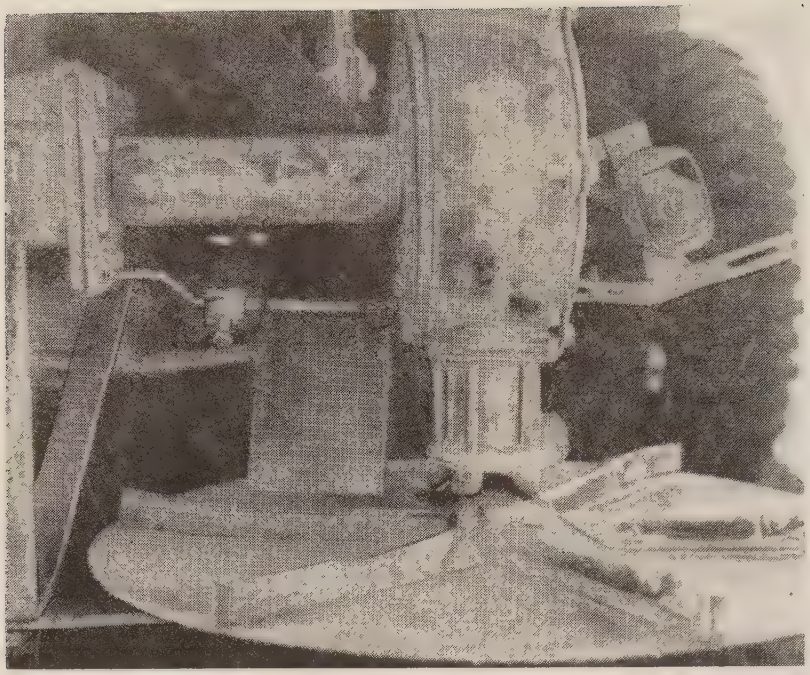

One of spreading discs showing drive mechanism totally enclosed. Mouth of fertiliser chute at left.

**Distribution** is effected by two large discs revolving from the centre to the rear and outwards in opposite directions. Each disc surface is divided into equal segments by vanes raised approximately 1in. The speed of the discs is in direct relation to the speed of the agitator which feeds to the discs, and therefore each segment receives an equal amount of manure at all speeds of the truck. Each segment commences its throw just before it faces directly backwards and completes it just after it has passed through a further 90 degrees. This means that each disc attends to the distribution of one half of the width being dressed. Width of spread can be increased or decreased by setting the discs so that the outer edge is tilted slightly upwards, or downwards. The most effective width of spread appears to be about 30ft.

## *Speed and Accuracy*

The machine during a demonstration was driven at all speeds from 4 m.p.h. to 25 m.p.h., the limiting factors being apparently only the condition of the surface of the paddock and the ability of the men feeding the machine to stay on the lorry platform.

At all speeds the amount of manure delivered remained unchanged on a

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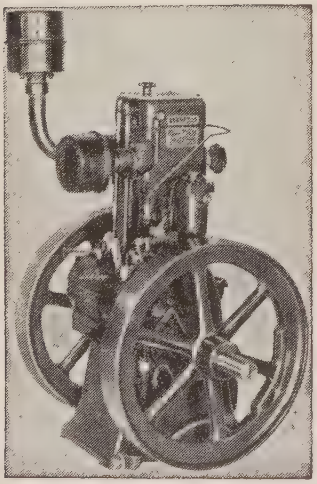

Illustrated is the 3½ h.p. Model. Delivery within a reasonable time can be arranged.

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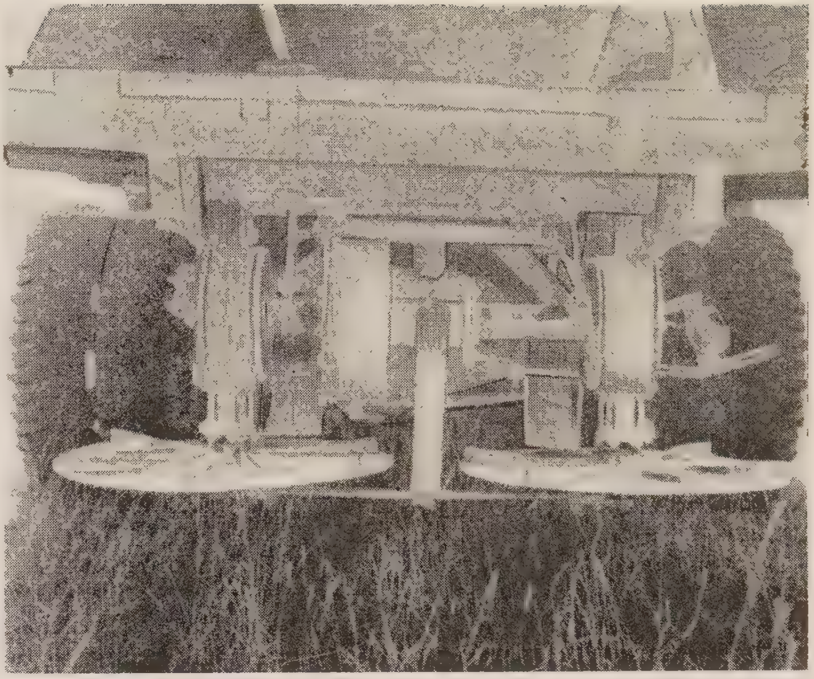

Attachment of spreading mechanism under truck.

per acre basis. The faster the lorry was driven the faster the agitator in the bin revolved, the more manure was forced to the feed chutes, and the faster the discs revolved, giving a more rapid spread. The ability to maintain an even delivery per acre at all speeds is a point which must appeal to contractors. As rough ground is reached there is no need to make adjustments because of slower speed. The driver merely continues at such speed as the paddock will permit and the topdresser does the rest.

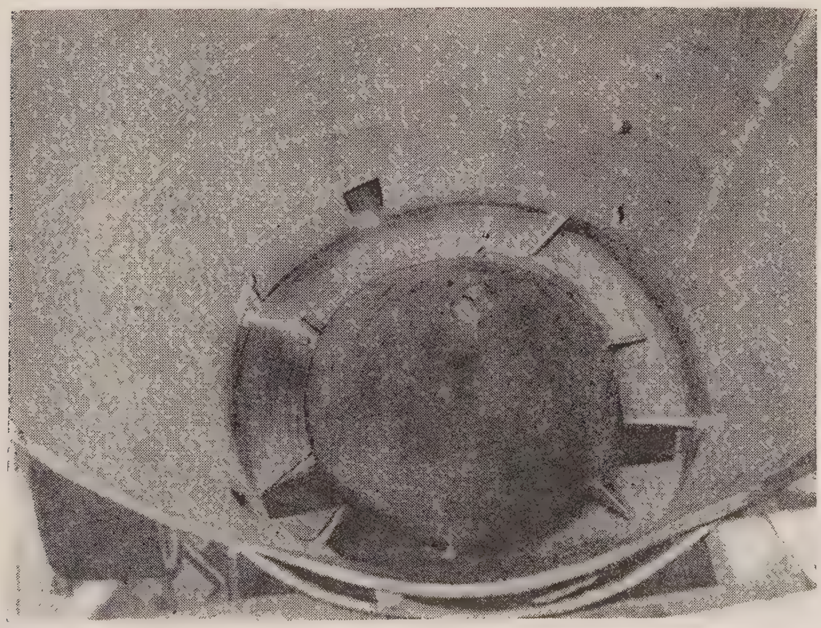
At a speed of 4 m.p.h., 14½ acres per hour would be covered if no allowance is made for stopping to reload the lorry. On the other hand, at 24 m.p.h. the theoretical coverage would be some 87 acres per hour. In practice, however, this machine has, on level land, topdressed just under 400 acres in a single day. The very uneven surface of the paddock used during a demonstration caused slow speeds, but even so 8½ acres were efficiently topdressed in 20 minutes, which is at a rate of some 200 acres per 8-hour day.

## *Uniformity of Spread*

Close examination of the 30ft. spread of manure failed to reveal any variation of spread, even though speeds had been greatly varied. This is because the manure is not just dropped or thrown into the air to fall where it will, but each particle is driven at high speed towards the ground. Small particles or larger particles made no difference; the initial velocity was so great that the manure was thrown to its correct position in spite of a fairly strong wind. Different manure mixtures received similar treatment and there was no tendency towards unevenness of spread.

## *Rates of Application*

Rate of application can be varied at will by alteration to the adjustable apertures above the chutes. Amounts from 1cwt. to 1 ton per acre can be sown, smaller applications being fully as even in spread as larger quantities.


Interior of manure bin showing conical agitator with vanes, which force the manure towards chute apertures, which can be seen at either side of agitator.

## *Operation of Machine*

Wherever a lorry can be driven this machine can operate, and it can be driven comparatively long distances for re-loading. In practice, however, it pays to use other lorries to keep the distributor supplied so that full use can be made of its remarkable spreading capacity.

Transport presents no difficulties, as the lorry is merely driven to its next "job." In short, the machine combines mobility, ease of operation, accuracy and evenness of spread with larger-scale topdressing operations.

## Measuring Stock Foods

USE of the following table will be found more satisfactory than the haphazard and often wasteful method of measuring stock foodstuffs by handfuls:—

1 bushel = 8 gals = 32 quarts.
1 kerosene tin (4 gals.) = half a bushel.
A box 4in. x 4in. x 4in.* = 1 quart.
A box 6in. x 6in. x 8in.* = 1 gallon.
A box 12in. x 12in. x 15½in.* = 1 bushel.
* Internal measurements.

A quart tin filled, but not packed, would represent $^{1}/_{32}$ of a bushel and the weight of the contents would be:—

| | lb. | oz. | | lb. | oz. |
|---|---|---|---|---|---|
| Wheat .... | 1 | 14 | Peas ...... | 1 | 14 |
| Maize .... | 1 | 12 | Barley .... | 1 | 6 |
| Oats ..... | 1 | 4 | Salt (common) | 2 | 0 |
| Bran ...... | | 10 | Pollard .... | 0 | 10 |
| Wheatmeal | 1 | 8 | Meatmeal | 1 | 8 |

# PLAN NOW TO REBUILD THOSE FEED RESERVES

In the North Island particularly the recent drought has seriously depleted feed reserves.

* * *

During the next two or three seasons efforts should be made to store sufficient hay and silage not only for immediate requirements but also for an insurance against the possibility of shortages in future years.

* * *

Plan to grow more lucerne in those districts where soil and climate are suitable for this crop. Lucerne withstands drought better than other farm crops and during normal seasons it will produce annually three or four cuts for hay or silage.

* * *

*For maximum hay or silage production fields should be well treated during winter and early spring. A quick-growing, vigorous sward is a better foundation for a heavy hay or silage crop than one which has been grazed hard and poached during winter.*

# FARM WORK FOR JUNE

*(By the Fields Division)*

## PASTURES

**Feeding Rationed Grass to Cows.**—As the early cows calve they should be permitted to graze the saved autumn growth on the spell-on and spell-off system, being allowed in for only an hour or two each day. If the field is large, it should be fed off in breaks. As soon as the field is grazed down to three inches, remove the stock to permit regrowth to about eight inches.

* * *

**New Pastures.**—The ground where new pastures have been established becomes very soft with wet weather and is liable to cut up with stocking. Graze these pastures only in dry weather, if necessary at the expense of older swards. Permit them to grow only two to three inches between grazings if sheep are being fed, or three to four inches for cattle.

## HAY AND SILAGE

The dairy cow requires about 14lb. of good hay a day, plus silage, grass, and other feed in sufficient quantity to satisfy her. In the drought areas it will not be possible to feed animals to appetite, and the hay and silage on the farm must be rationed so that they are given some of this valuable foodstuff every day during the winter. If hay is fed on to pastures infected by grass grub, the ground is pugged up, making it difficult for the grub to cause further damage, and the ground is reseeded at the same time. Gorse, blackberry, and other noxious weeds can be suppressed and the area seeded by feeding hay heavily.

## LUCERNE

Now is the time to plough land in readiness for sowing lucerne next spring. Keep the stock off present stands of lucerne. Oats or other cereals sown in lucerne stands to suppress weeds are better left till late in the winter, when they can be cut and fed out to stock. This is a better practice than turning stock in to graze.

## CEREAL GREENFEEDS

If cereal greenfeeds sown in the autumn are to be grazed, the first grazing usually occurs this month. On dairy farms they are frequently left for cutting and feeding out in the late winter, when a greater bulk of growth is available. Crops treated in that way will not produce much further growth, and it is advisable to plough the ground after such treatment in preparation for sowing some other crop.

## ROOT CROPS

The feeding of swedes, chou moellier, and carrots will be in full swing. Use breaks for feeding off. Particularly in districts where fodder is scarce, it pays to pull and cart roots for feeding on dry areas. Mangolds should be pulled this month. In cold climates they should be stored in pits as soon as they are pulled. Grassland should now be skim ploughed for spring-sown crops. Now is the time to plan fodder needs for next season.

## POTATOES

Complete all digging operations as early as possible. Potatoes for keeping should be pitted as they are dug. See that pits are in well-drained sites and given adequate coverage and ventilation.

## CEREALS FOR GRAIN AND CHAFF

Wheat sowing should be finished early this month. In maize districts all crops should be in the crib by the end of the month. See that the maize crib is rain and vermin proof. As soon as sowing of cereals is completed, attend to deep drains round fields and run the plough along depressions in the land to assist surface drainage. Grassland intended for maize should be surface worked this month.

## STOCK

**Pigs.**—Sows with litters should be given all the skim-milk available, and if this is not sufficient for their needs they should receive cereals. Feed other pigs on fodder crops and meat meal, giving them as free a range of grass as possible.

* * *

**The Dairy Herd.**—Newly-calved cows should be placed on fresh feed and given adequate hay and other supplementary crops. Complete the preparation of pens for the young calves. Their quarters should be warm, well-ventilated, yet free of draughts.

* * *

**Sheep.**—Provide for mothering pens for lambs. Keep stock off low-lying areas. Keep a watch for cast ewes. Watch the feet.

## GENERAL

Attend to implement, farm building, and fencing repairs. Plant trees, except in very severe climates. Cut hedges, grub and cut isolated noxious weeds such as gorse and blackberry. Finish cleaning out drains and culverts. See that milking machines are in good order for next production season.

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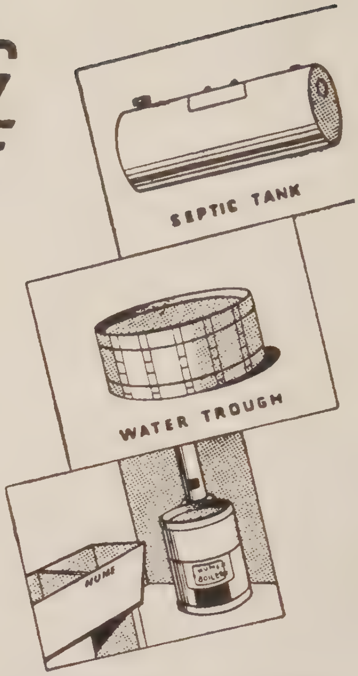

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# ASPARAGUS PRODUCTION IN HAWKE'S BAY

*By* T. CONWAY, *Orchard Instructor, Hastings.*

THE production of asparagus in the Hawke's Bay district has developed considerably during the last 10 years. Large-scale production depends on a ready market for the asparagus produced, and Hawke's Bay growers have had the advantage of a canning factory close at hand which is capable of processing a very considerable quantity of spears. In addition, the Wellington market has offered a convenient and lucrative outlet to those growers who are prepared to bundle and pack their produce with considerable care in anticipation of a better price on an open market.

THE area at present planted with asparagus in the Hawke's Bay district amounts to over 350 acres, although all of this area is not yet in full production, as some is of recent planting. New areas of varying sizes are being planted from time to time, and further plantings are contemplated. Of the total planted, one area alone comprises 190 acres, which it is planned to increase to 225 acres during next planting season. It has been stated that the production from upwards of a further 1,000 acres could be absorbed by the canning industry.

## *Location of Main Areas*

The two largest areas in Hawke's Bay are situated at the foot of the Havelock North hills and are within the boundaries formed by St. George's Road and Havelock North Road. Other large areas are situated at Kaiapo Road, Twyford, Pakowhai, and various other parts of the flat lands within the vicinity of Hastings.

## *Type of Soil*

A moderately heavy but free-working loam is most suitable, and the flat lands close to Hastings are proving ideal for asparagus production. The soil is free in texture and of good depth and quality. Asparagus is tolerant of salt in the soil, as is evident from the success of the trial plot on the reclaimed area at Ahuriri Lagoon; but, contrary to common belief, salt is not essential in the soil, nor need it be applied for successful production, except where it is used to assist in weed control.

## *Drainage*

Good drainage is essential, as asparagus will not tolerate waterlogged soil conditions during the winter. Root rotting and collapse or weakening of the crowns quickly follow over-wet conditions. The depth and texture of most Hawke's Bay soils provide satisfactory natural drainage, and it is seldom necessary to expend money on drainage. A slightly sloping site is preferred and is usually selected for asparagus growing.

## *Shelter*

No special provision is made for shelter belts, and most of the large areas are fairly exposed to prevailing winds; but some provision for suitable shelter would be an obvious advantage.

## *Preparation of Soil*

Thorough preparation of the soil before planting is all-important, both to provide an ample depth of open-textured soil to encourage free rooting and to ensure the eradication of weeds and weed seed. On account of the high quality of most Hawke's Bay soil, green cover crops are seldom ploughed in, nor are organic manures (such as stable or stock manures) usually applied to the areas before planting.

If the land to be planted is in pasture, it is first lightly skim-ploughed. After a short period the turf is cut up by discing several times, and this is then followed by deep ploughing to a depth of approximately 12in. Frequent deep discing and cultivation is continued over a fairly lengthy period to obtain a good tilth and to free the area of weeds. A second deep ploughing, crosswise, is then sometimes given, followed once again by frequent cultivation.

One ton of agricultural lime per acre is cultivated into the top soil before planting. A light dressing of blood and bone fertiliser may be broadcast on the area and worked into the top soil before planting or applied along the furrows to encourage the quick establishment of the crowns.

## *Raising Seedlings*

Asparagus seedlings are usually raised by nurserymen for the growers, but occasionally the seedlings are produced by individual growers on a corner of the areas ultimately to be planted. The seedling plot requires to be well prepared to a fine and firm tilth and the seed

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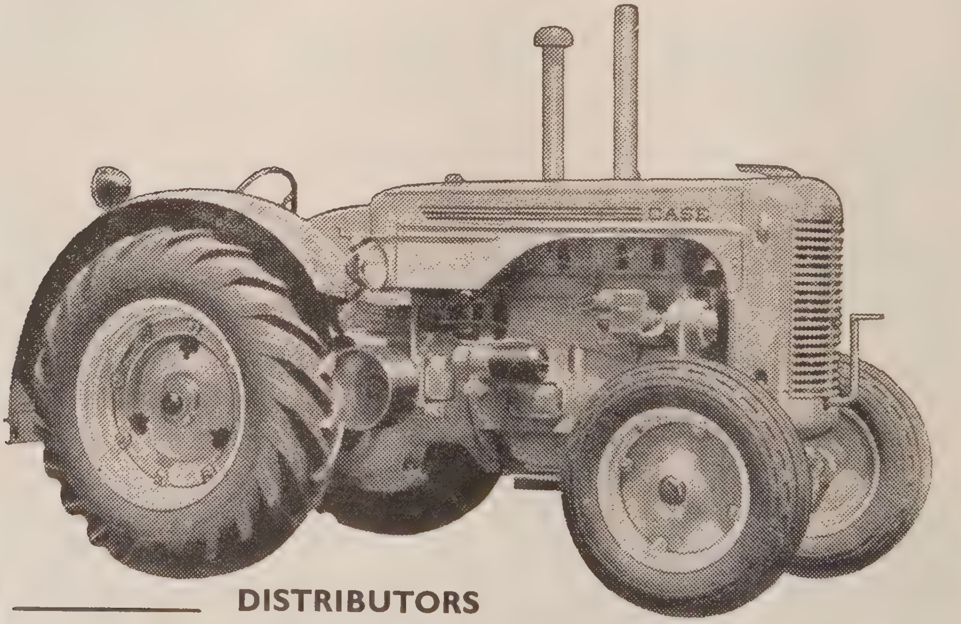

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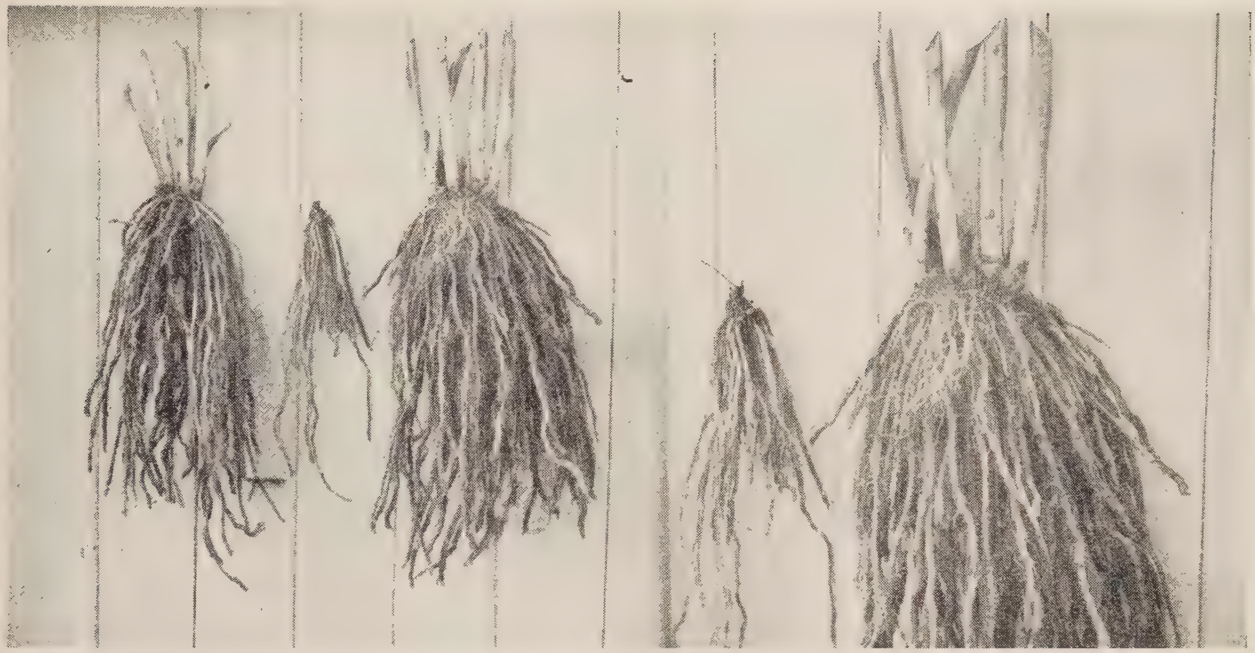


**Left—Crowns of the Paradise variety showing one-year seedling as usually used for transplanting (in centre) and crowns developed during the second year (left and right). This variety can be harvested three years from sowing of seed. Right—A seedling and a two-year-old crown of Paradise asparagus.**

sown in rows 18in. to 21in. apart. The seed is sown fairly thinly, and, if necessary, the seedlings are later thinned to about 4in. apart. Care and attention are needed to raise strong seedlings which will transplant and become established quickly and easily. The nursery price at present is approximately £3 10s. per 1,000 for seedlings and £6 per 1,000 for two-year-old crowns.

One-year-old seedlings are usually preferred, as they are cheaper, easier to handle during removal from the nursery, transplant better, and establish themselves more readily. Two-year-old crowns are more easily damaged during handling, and the after effects of this damage may be the weakening or death of odd plants in the rows.

Ten-months-old seedlings of Mary Washington asparagus.

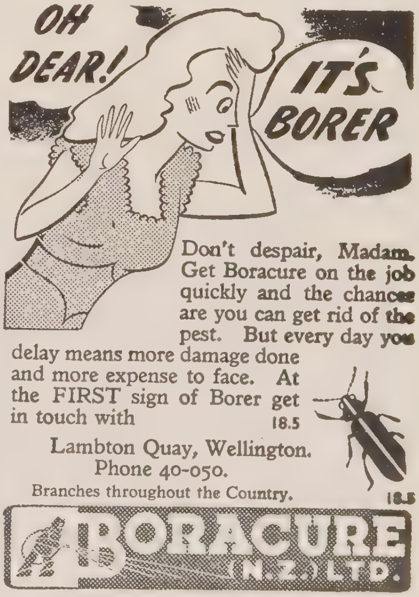
## *Varieties*

The two main varieties of asparagus grown in the Hawke's Bay district are Connover's Colossal and Mary Washington, both good commercial and factory varieties. No special effort is made to select rust or mildew-resistant varieties, as these diseases are not of serious consequence in the district. A variety called Paradise has recently been introduced into the area, and it shows great promise in yield, quality of spear, and general vigour.

## *Planting Time & Distance*

Planting is usually carried out during August, or, if the land is in good condition and not too wet, in late July. The plants are usually set out in rows 6ft. apart and are placed 18in. apart in the rows. About 4,800 plants per acre are required at this spacing.

To facilitate subsequent cultivation and to prevent the crowns becoming exposed or damaged during cultivation, particular care is taken to see that the planting is sufficiently deep to allow 8in. to 9in. of soil over the tops of the crowns. Deep furrows are taken out along the lines of the intended rows, the crowns or seedlings are placed in these furrows, and some of the soil is drawn back into the furrow by hand and firmed around each plant. At this stage not more than 2in. of soil is drawn over the crowns. The roots should be well spread out before they are covered, and, if possible, the base of the two-year-old crowns should be placed on a handful of soil drawn up in the bottom of the furrow. The final covering in of the furrow is left until the crowns have become established and are strengthened sufficiently to withstand the deep covering. If the furrows are filled in too early, the



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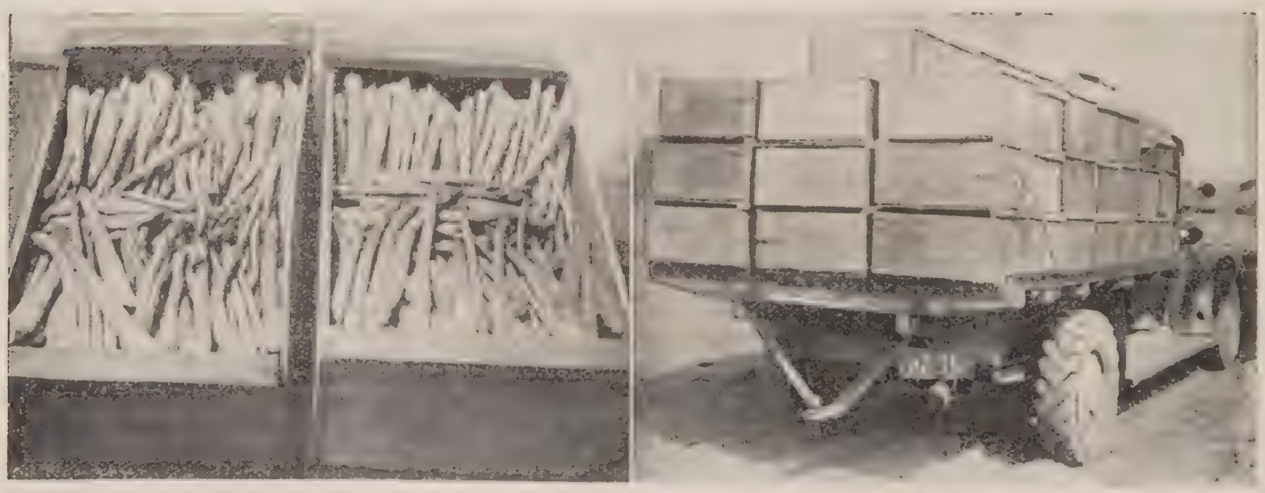
# CANNING and MARKETING ASPARAGUS

Left—Grading and trimming asparagus spears at canning factory ready for packing in cans. Right—Girls in cannery preparing asparagus for tins.

Left—Filling tins with asparagus spears ready for sealing and processing. Right—Asparagus bundled and packed for marketing. Sample from Ahuriri Lagoon trial area.



Left—Asparagus spears loosely packed in boxes ready for transport to the cannery. Right—A truck-load of boxed asparagus on the way to the cannery from a 100-acre asparagus plantation.

young plants are liable to become smothered and retarded.

## *Establishment Costs*

Apart from the high cost of suitable land in Hawke's Bay, initial establishment costs are reasonably low. Maintenance costs, however, are fairly considerable during the period of waiting (two to three years) until the asparagus areas produce remunerative crops.

A typical illustration of establishment costs is set out in the following figures, which relate to a 13-acre area planted two years ago:—

| | £ | s. | d. |
|---|---|---|---|
| **Cost of land—** | | | |
| **13 acres at £120 per acre .. ..** | **1,560** | **0** | **0** |
| **Preparation and planting costs—** | | | |
| **Double ploughing and discing, etc.** | **75** | **0** | **0** |
| **56,000 plants at £2 per 1,000 ..** | **112** | **0** | **0** |
| **Planting (unskilled labour) ..** | **39** | **18** | **0** |
| **Manures—** | | | |
| **13 tons lime at £1 per ton ..** | **13** | **0** | **0** |
| **Distributing line at 5/- per ton ..** | **3** | **5** | **0** |
| **Total costs of establishment ..** | **£1,803** | **3** | **0** |
| **Cost per acre for establishment** | **£138** | **14** | **0** |
| **Maintenance costs per acre each year before cutting .. ..** | **£15** | **0** | **0** |
| | **(approx.)** | | |

**(Note.—It should be noted that plants cost only £2 per 1,000 in this instance, whereas the present nursery price is approximately £3 10s. per 1,000).**

## *Manuring*

In Hawke's Bay little fertiliser is applied or appears necessary, and often no manure is applied at all; but where applications are made one dressing of 5 to 7cwt. per acre of blood and bone, applied as soon as cutting ceases, is usually sufficient. This may be applied either concentrated along the rows or broadcast over the whole of the land before a very light earthing-up over the crowns or a shallow discing of the whole area. Additional liming is normally carried out, as considered advisable, at the rate of ½ to 1 ton per acre, but annual liming appears very desirable. Heavy manuring of the areas may result in the spears being over-large for canning.

## *Late Autumn & Spring Cultivation*

Wide planting distances are provided between the rows to facilitate tractor cultivation during the growing season. Deep planting allows of more general use of discs and other implements over the whole area during the dormant period, instead of merely cultivating between the rows, and considerably reduces costs in the handling of large areas.

When the fern growth (foliage) is cleared off in the late autumn, a general cultivation is carried out over the whole area, including the lines of the rows of crowns. The discs are set with a light "off-set" so that cultivation is shallow but sufficient to move and break up the surface soil. Two or three discings may be given at this stage to obtain a satisfactory tilth. In the early spring, usually during July or August, the land is ploughed in such a way that the soil is thrown up to the rows, creating a semi-moulding of the crowns. Apart from giving protection to the crowns, this tends to smother weed seedlings growing along the rows. During the early cutting period, when weeds again commence to appear, a light discing is carried out over the whole area. This will destroy a small proportion of the developing spears and retard cutting for a few days, but it destroys the weed seedlings and eliminates hand weeding of the rows, which would be a big task on large areas. The temporary set-back occurs only when light cuttings are being made.

## *Harvesting*

The first light cutting is usually made during the third season from planting, especially where one-year-old crowns have been planted, but where two-year-old crowns have been used a light cutting may be made in the second year. Cutting usually commences about the middle of September, and the extent of the early cutting depends on the vigour of the plants. Any excessive cutting in the early life of the beds tends to weaken the crowns at a time when strengthening of the crowns should be the chief aim if the area is to be brought into profitable production as soon as possible.

The frequency of cutting is determined largely by weather conditions and the number of cutters employed, but usually the rows are cut over every third day at the beginning and end of the season, and every second day during the peak period. Harvesting usually begins at 5 a.m. and ceases at midday, so that each day's cutting can reach the factory in time to be processed the same day.

Where contract workers are employed, an area comprising a specified number of rows may be allotted to each cutter for the season's harvesting. Each allotment is then divided into two, and each half is cut every second day. This method provides for complete and uniform cutting where large areas are involved. Contract workers receive 1d. per lb. for the asparagus harvested and they can earn from £5 to £6 per week. The spears are cut off below ground level with a knife and, when consigned to the cannery, are placed loosely into special boxes provided by the canning concern.

When properly established areas are harvested, all the spears, whether very thin or thick, are cut, and the exceptionally thin spears are rejected and dropped as they are cut. This prevents premature fern growth checking spear production. Cutting ceases at the end of November, and the fern growth is then allowed to develop to build up good crowns for the following season.

## *Production & Price*

Production from large areas averages upwards of 1½ tons of spears per acre, while higher yields are obtained on fully-established areas during good seasons. The highest yields come from smaller areas, where more intensive care can be given or where plantings are closer. The cannery demand is for a medium-sized to rather small spear, and over-size spears may have to be disposed of elsewhere. The present cannery price to the grower is approximately 5d. per lb., but the price is subject to adjustment from time to time.

## *Summer & Early Autumn Cultivation*

After cutting of the spears ceases for the season the soil between the rows is cultivated again, close up to the crowns, or the whole area may be disced over. Periodical cultivation is then continued until heavy top fern growth makes further cultivation impracticable. At that stage there is little weed growth to interfere with the development of strong asparagus foliage if the autumn is dry, but when the autumn is wet weeds are likely to become rather troublesome, and little can be done at that stage to keep weeds down owing to the excessive spread of the fern growth. The ultimate cutting and burning of the fern growth will, however, at the end of the season eliminate high weed growth at the same time.

## *Clearing Fern Growth*

Before seed on fern growth becomes ripe and falls to the ground in the autumn, fern growth should be cut and burnt. This operation is usually carried out towards the end of May with either an ordinary hay mower or with a reap hook. It is important not to let the seed become too ripe or it will fall during cutting and indiscriminate seedlings will become troublesome. Fern growth is sometimes carried off the area and burned; but on very large areas it is more general to gather up the windrows of fern growth with a hay sweep and burn it in heaps on the planted area. Some growers attempt to burn the fern growth along the windrows which are laid between the rows of asparagus crowns, but this is usually unsatisfactory, since it is difficult to dry out the growth sufficiently during the moist conditions of autumn for a good clean burn.

## *Life of Plantations*

Providing soil conditions and drainage are suitable and the plantation receives proper attention, the profitable life of an asparagus planting appears fairly lengthy, although after a number of years the area is liable to become rather patchy through the death of odd plants. The average economic life of areas should be upwards of 20-25 years under good management.

### *Ahuriri Lagoon Trial*

As a result of the severe earthquake in 1931, when extensive damage was done in Hawke's Bay, approximately 8,000 acres of marshy and lagoon land was left sufficiently dry to make reclamation practicable. Asparagus was considered as a possible crop in view of its tolerance of salt conditions, and it was decided to make a trial planting of asparagus to test the productive possibilities of this reclaimed area. The ploughing of the selected area was commenced in April, 1936, and, after additional ploughings, provision of drainage and shelter, the sowing of cover crops, and artificial manuring, the planting of the area with asparagus was completed on August 30, 1937, using two-year-old crowns of both Mary Washington and Connover's Colossal varieties.

The first light cutting of spears was made in September, 1939, and production has increased steadily as the area has become established. Light to medium applications of fertiliser were made at appropriate periods, but heavy applications were avoided and have not appeared necessary to produce good type canning spears.

Fern growth of asparagus.

The following conclusions have been arrived at as a result of the trial on the reclaimed section of the Ahuriri Lagoon:—

1. While recognising that the heavier soil types in the district are more suitable for the production of asparagus, the trial on the Ahuriri Lagoon has shown that this area has possibilities.
2. The quality of the asparagus harvested appears to be quite equal to that from other more suitable areas, but cuttings are considerably lighter in quantity.
3. The following factors would have a detrimental effect on economic commercial production:—
    - (a) The light sandy soil results in a shorter harvesting period, due to undue drying and heating of the soil surface.
    - (b) The prevalence of weeds of a type difficult to eradicate has proved a real problem, since constant cultivation is impossible on an asparagus area owing to fern growth development during the summer and autumn period.
    - (c) The great deficiency of organic humus in the soil is a limiting factor and is difficult to overcome by economical means, as green cover-cropping is not practicable in crops of this nature.

### *Conclusion*

While the system of production outlined in this article is especially applicable to Hawke's Bay, where individual areas of from 10 to 190 acres are producing asparagus for canning, there seems to be no reason why similar methods, with perhaps some modifications, could not be adopted elsewhere in New Zealand with results equally satisfactory, providing that the soil and climatic conditions are equally favourable.

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# FARM SHELTER

## Species for Wet Areas, Timber, and Firewood

IN this third of a series on farm shelter T. E. Rodda, Fields Instructor, Hamilton, deals mainly with shelter species for undrainable land and the various ways of raising plants and seedlings, wrenching and transplanting, and striking cuttings. He also covers a number of incidental and specific uses of shelter species on the farm.

ON many farms in wet and semi-wet areas that cannot be drained satisfactorily it is necessary to provide some class of shelter for complete protection from winds. None of the trees so far mentioned in this series will prove suitable in such situations.

### *In Damp and Wet Areas*

The alder (*Alnus glutinosa*) is one of the best for wet, boggy ground. The black poplar (*Populus nigra*), which also thrives in damp and stagnant soils, cannot stand the wet conditions in which the alder exists.

For most effective sheltering with alders plant trees 4ft. to 6ft. apart in the rows with the same distance between the rows. A width of four rows is recommended. After the trees have made a fair start (say in the second year of their growth) cut them back to 18in. This will cause them to throw up numerous shoots from each stump, forming a dense thicket.

Should a drain cross at right angles to the shelter, the gap in the shelter wall may be closed by planting a tree on each side close to the banks and allowing them to run up straight for a year or so, or until they are sufficiently tall almost to reach across the drain if placed horizontally. With a bill-hook or axe lightly nick the tree at ground level on the side away from the drain and bend to the horizontal over the drain. If the other tree is similarly treated, they may be wired together to keep them prone. Where trees have been cut at ground level stumps should be covered with earth. Shoots which will start from most buds of the prostrate trunks will eventually form a dense thicket and block the passage of wind along the drain.

In moist land, where water is not really stagnant, Lombardy poplar will form a good main windbreak if four rows are planted 6ft. apart each way. Two years after planting the two outer rows should be cut back to within 2ft. of the ground and the two inner rows allowed to go unchecked. The following year one of the outer rows can be cut back again 1ft. higher than where it was first pruned. In this way a belt dense in the base and of fair height will be produced in a short time.

Another way to form a dense belt is to plant a row of *Eleagnus* between the two inner rows of poplars. The trailing shoots of the *Eleagnus* supported by the side growths of the poplars will eventually form a dense mass capable of stopping all winds.

### *Planting on Drain Sides*

Planting trees in a single row on drain sides to shelter fields and to smother grass and weeds on drain banks is common and quite good practice. Trees, however, should be planted on the correct side to resist particular winds. For instance, if the drain runs due north and south, and the heaviest winds come from the west, then trees should be planted on the western bank.

As in certain localities bad winds occasionally blow from the east, the planting of a row on each side of the drain is advocated on reclaimed country where the permanent water level is no more than 3ft. below the surface. As on such country all the main tree roots naturally will run away from the drain banks and as the tree roots of most species will not penetrate deeper than water level, the side offering the least resistance to the wind will be the drain side. When heavy wind pressure comes from the east (especially during wet weather) and the water in the drain rises above normal, the whole line of shelter is likely to be uprooted and tipped into the field.

**During the last 20 years many fine drain-side shelter rows on reclaimed swamp have been destroyed in gales mainly from the east when rows have been on the western side. If a row is planted on each side of the drain one protects the other. When the tree branches meet over the drain they shut out the sunlight and prevent grass and weeds from blocking the water channel.**

On suitable country *Cupressus Lawsoniana* may be used for drains up to 6ft. wide. For drains from 8ft. to 14ft. wide *Cupressus Benthamii*, with the wider spreading habit of its branches, is more suitable.

### *Homestead Shelter*

While it is advisable to plant shelter around the farm homestead to check cold, bleak winds, great care must be exercised not to plant large trees near buildings and gardens. Trees when small arrest the wind and do no harm, but after a few years their trunks become bare, cold draughts drive through them, their large branches cast shade over the homestead area, and their foraging roots invade all garden space. Homesteads surrounded with these trees become damp, cold, and unhealthy.

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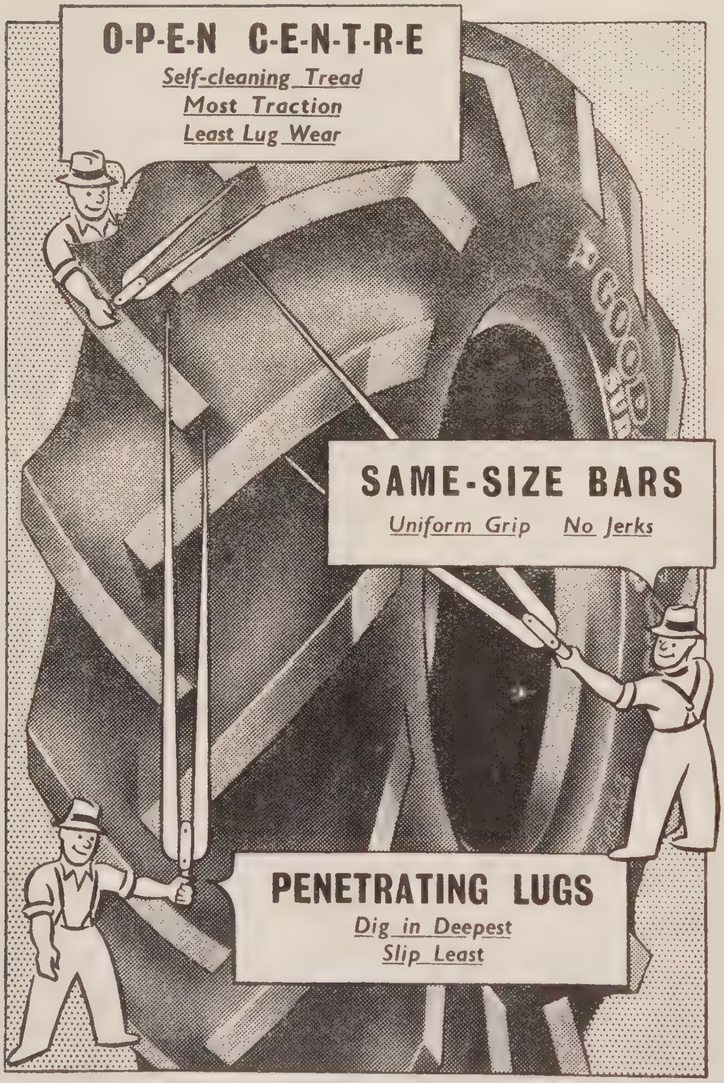

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some quick-growing, temporary shelter should be planted and retained until a permanent shelter, which should be planted at the same time, becomes effective. In the warmer parts of the Auckland Province no appropriate plant grows more quickly than *Albizzia lopantha*, a species of wattle. With proper cultivation and care it grows 10ft. to 12ft. high in two years. In the colder areas a hardier plant, tagasaste (*Cytisus proliferus*) is recommended. With good treatment it reaches 10ft. high in two years. Seeds of both species should be sown during October in well-prepared land (in the situation it is intended to grow) at the rate of ½oz. to 1oz. per chain.

On fairly level land it is advisable to plant the permanent shelter on the lee side of the temporary shelter so that it will derive assistance from the latter. If, however, a house is on a hill the windward slope of which is fairly close to the building, it is necessary to plant the permanent shelter some distance down the slope so that when the trees grow the top of the hill is level with the middle of their height. There is then no danger of the wind sweeping underneath.

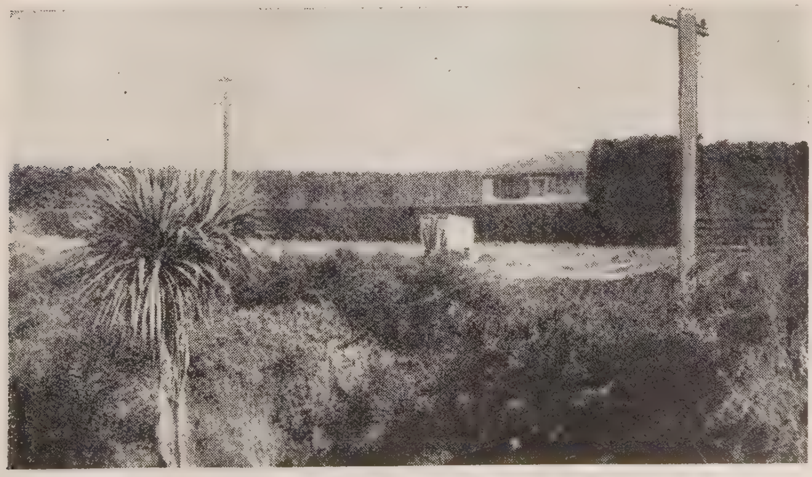
Shelter for wet areas. Alder *(Alnus glutinosa)* flourishing in the water on the bank of a river.

## *For Timber & Firewood*

On average farms those odd corners and rough hillsides which cannot be cultivated should be planted with trees to provide building and fencing timber and firewood. For rapid growth outstanding species are:—In the *Pinus* group—*radiata;* in the *Cupressus* group—*macrocarpa;* in the *Eucalyptus* group—*E. pilularis* (blackbutt), *E. eugenaides* (white stringybark), *E. saligna* (flooded gum), *E. Macarthurii*, *E. obliqua* (stringybark).

For timber, plant in rows 6ft. apart, with 6ft. between the trees, and set out as for planting shelter among scrub. Trees planted close together start upward with good straight barrels. After a few years, when the trees show a tendency to crowd one another, thin out by removing every other one. Those removed will provide timber for firewood, rails, stakes, and temporary posts, and those remaining will ultimately make good, straight timber.

Pines and macrocarpas should be planted on the driest soil. Of the gums, *E. pilularis* will grow on moist soils. It is a very heavy wood, durable in the ground and suitable also for sawn timber. *E. eugenaides*, which will not succeed where frost is too heavy, likes free, open soil, but will not do on hard clay; timber is very strong and durable. *E. saligna* will stand a fair amount of frost but will not stand exposure to salt winds; it will grow well in free soil, not too wet; the timber, which makes good posts and sleepers, is very straight-grained. It also makes good board timber. *E. Macarthurii* will resist frosts fairly well, but will not stand salt winds; it grows particularly well on damp swampy soils; the timber is hard and strong and moderately durable; it is not suitable for sawing into boards. *E. obliqua*, one of the hardest of the eucalypts, stands salt winds well; it grows fairly well on clay soils, but does rather better in moist situations alongside creeks, etc.; it is a good building timber. *Pinus radiata* makes excellent timber for farm buildings provided it is kept clear of the ground. *Cupressus macrocarpa* makes excellent timber for fencing, building, and general repairs.


A well-sheltered homestead.

More consideration should be given to planting trees in large fields to provide shade for sheep and cattle during the hot, sunny days of summer and autumn.

The weeping willow (*Salix Babylonica*) is particularly suitable for districts with substantial depth of free soil of good moisture-holding capacity. It is well suited for planting in fields where the wind is not too severe. Recommended for single-tree planting.

The plane (*Platanus orientalis*) does well in free, open soils. With a wide spreading habit it is recommended for single-tree planting.

The oak (*Quercus robur*) is a tree highly suitable for single planting. It does fairly well on rich free soils, but is very slow-growing on heavy clay. With a wide, spreading habit it is valuable for stock shelter.

Timber and shelter. Eucalypts planted alongside a drain. Note the absence of weeds and trash on the side of the drain where trees are planted. Better weed control could have been effected if trees had been planted on the other side of the drain also.

*Euculyptus amygdalina,* which is an excellent tree for growing on moist soils, also does well on hard clays. It makes a good, spreading tree if planted singly and is very suitable for planting in groups of three or four.

*Cupressus Benthamii* does well on many soils. Recommended for planting in groups of three or four.

*Cupressus trolosa,* a very compact grower, grows on heavy clay, but does better on free, well-drained soil. Recommended for cluster planting.

*Cupressus macrocarpa* is an excellent tree for single planting in fields. Of a wide, extending habit when planted singly, it provides shade for a large number of stock when fully grown.

## *Farm-grown Fencing Timber*

Until recently New Zealand native forests have been relied on to provide all timber required for fencing, but as this timber is now scarce and very expensive, consideration has to be given to the treatment of the remaining poor-quality native timbers and New Zealand-produced exotic soft woods with preservatives to make them more durable (see "N.Z. Journal of Agriculture," February, 1946, page 193). The State Forest Service has done much research into timber preservation, and results have been most encouraging. Improvements in preserving methods may soon be confidently expected. While large, properly-equipped plants may produce the most uniform article, farmers in the near future may be able to turn out a reliable product with their own plants. However, until timber-preserving methods are more generally practised, information about the felling and seasoning of timber may be useful.

**Felling should generally be done in the late autumn or early winter. The smaller the amount of active sap in wood the better the wood will season. Winter-felled timber, always considered the strongest, shrinks less than timber cut during spring or summer.**

Posts should be thoroughly seasoned before being placed in the ground. This is usually done by cross-stacking in heaps at the stump where split.

After seasoning, the life of posts can be prolonged by dipping the butts into boiling tar to a depth just above ground level. The tops should also be dipped to a depth of at least 3in.

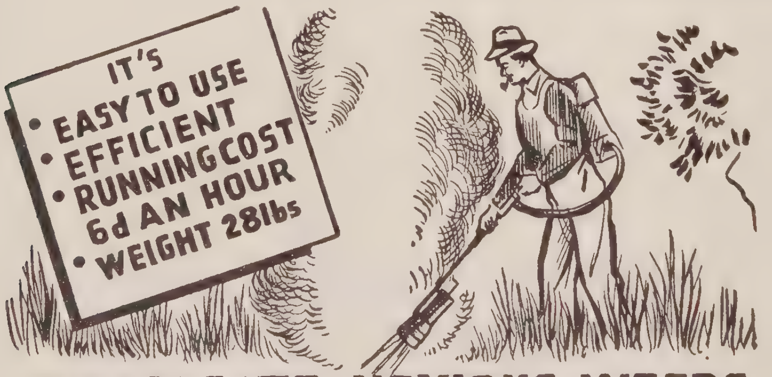
## *Species for Firewood*

There will always be a keen demand for firewood in the farm home, and for future supplies reliance may soon have to be placed on timber produced from exotic trees planted by pioneers. A duty today is to provide for the needs of future generations. Some of the best trees to plant for this purpose are *Pinus radiata* and several of the eucalypts such as *obliqua, Macarthurii* and *rostrata.*

## *Filling Draughty Gaps*

Difficulty has frequently been experienced in getting new trees to grow in shelter belts where older trees have become bare of foliage and branches up to several feet from the ground. To do away with the old trees and start afresh has always been considered the best plan.

Four plants give promise of solving this problem—*Eleagnus parviflora* (for wet and moist places), *Ligustrum sinense* (for moist areas), and *Pittosporum crassifolium* and African boxthorn (for dry soils). *Eleagnus* and boxthorn should be well-rooted two-year-old plants. The following methods of planting are suggested: Dig out a fairly large hole where the plants are to be set, and fill in with



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good, fresh earth from a field to give the plants a sound start. Plant fairly close together on the outer edge of the belt or tree row.

With *Pittosporum* and *Ligustrum* grow seeds in pots 5in. in diameter and, after getting them well started, harden off under severe conditions. When a year old transfer them during early spring into prepared pits where they are to be situated. The pits should be filled with new earth and the trees transferred from the pots without breaking the balls of earth surrounding their roots. A little waste from old silage stacks or old stack bottoms spread as a mulch around these newly-set-out plants will greatly assist in establishment. Occasional waterings during dry periods are recommended.

**Timber and shelter. Eucalypts planted for shelter on land bordering on peat swamp, showing growth 12 years after planting.**

## Raising Plants in Beds

September in the North Island and October in the South Island are the times most suitable for sowing coniferous and other small seeds. Seeds of deciduous trees such as oak, sycamore, chestnut, and walnut should be sown as soon as gathered in the autumn. Seedlings in nurseries should be grown in rows from 4in. to 6in. wide so that they can be easily wrenched in the autumn.

The soil should be thoroughly pulverised, worked down to a fine tilth, and raked even and smooth. Peg out rows 18in. apart. Stretch a line along the first row, and open out a very shallow trench no more than 1in. deep and the full width of a hoe. Sow the seeds of trees such as pines, *Cupressus Benthamii, Cupressus Lawsoniana,* and *Cupressus macrocarpa* thinly along these prepared trenches. Cover with very fine sand or very sandy earth obtained from a layer well below the surface to ensure that it will not be full of weed seeds. This covering of earth should be not more than ¼in. deep. Firm the earth on the row by patting with the back of a spade.

Protection from birds and shading from fierce sun must be provided until the seedlings are 1in. or a little more high. This may be done by cutting the tops off manuka or the light tips off *macrocarpa* (about 9in. to 10in. long) and placing them in the ground on both sides of the seed row and drawing them in over the row to form a screen. Care must be taken not to leave them too long or the seedlings will be drawn up too tall and spindly. Cultivate between the rows to suppress weeds and conserve moisture. Pull out all weeds among the seedlings in the rows.

**Shade and timber. A clump of gums planted in a corner of a field. While growing they will provide shade for stock and will eventually supply good fencing timber.**

## Wrenching Seedlings

When the autumn growth is complete, towards the latter part of March or April, the seedlings should be wrenched. Insert a spade at an angle of about 45 deg. on the sides of each row so as to move all the plants slightly and break the little roots. Firmly tread the sides of each row and leave them as they are until early spring, when the little plants should be set out in nursery rows.

## Transplanting

Transplanting, which encourages formation of fibrous rootlets without which most species of trees cannot be transferred with success to plantations, should be deferred until spring. The seedlings should be lifted from the nursery with a five- or six-pronged fork and taken into the shade, or better still a shed, for grading into various sizes, for counting, and for clipping off extremely long, straggling roots with shears. A mixture of equal parts of garden soil and cow manure should be prepared in a shallow tub. Add water sufficient to make a fairly fluid paste. The seedlings should be

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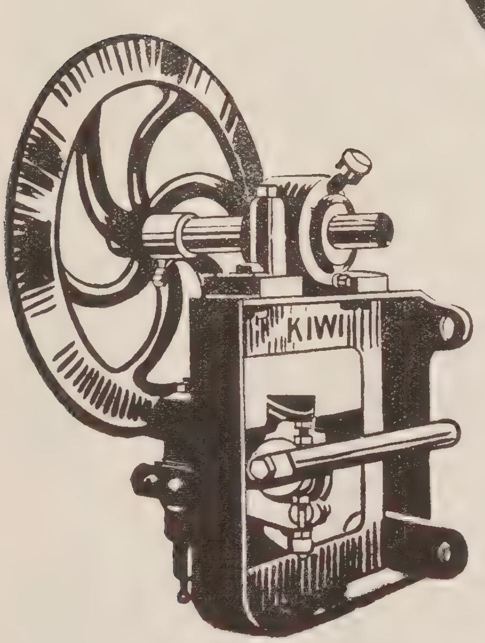

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dipped into this so that their roots are equally covered with a fine layer of mud. The plants then should be thinly placed against the sloping side of a shallow trench and their roots covered with soil. From these trenches they should be moved for transplanting, the various sizes being planted separately.

When transplanting seedling trees a trench should be opened with a spade on one side of the ground and the earth removed to the opposite side of the plot where the planting will finish, so that after digging there will be soil sufficient to fill the last trench when the final row of trees is completed. Two spits or more of soil should be turned over into the spade-depth trench until a width of 15in. is reached and the whole dug area made even by raking. A garden line should be stretched from end to end of the plot about 10in. in from the line where the digging started. To make the openings for the plants press a bricklayer's trowel into the ground close to the line and draw the handle forward far enough to make the required space. Insert the plant at the back of the trowel and close to the line. After withdrawing the trowel apply gentle pressure with the foot to close up and replace the soil in close contact with the roots. Space of 6in. to 8in. should be allowed between plants. Space of 15in. to 18in. between rows is suitable for most seedling plants. When a row of plants is completed, another 18in. width should be dug and raked, the second row lined out and planted like the first row, and so on until all seedlings are planted out.

When the soil is sufficiently dry to work after the first shower following transplanting, the whole bed of transplants should be hoed with a Dutch hoe. This should be done frequently through the spring and summer. At the end of April the trees should be again wrenched and left until the end of May. Trees at this age may be planted out if the land for their permanent location is well prepared. In rather exposed situations it pays to leave trees in the nursery for another year. If this is done it is advisable to lift every other plant in the nursery row and replant them 18in. to 2ft. apart in another part of the nursery for the remainder of the time. This extra room improves the root system, and hardy, robust trees for future planting are the result.

## *Lifting from Nursery*

When lifting trees from nursery lines for planting out into permanent positions considerable care is necessary to avoid mutilation and excessive drying out of roots. After lifting, the trees should be heeled-in until required. While being transported they should have their roots well protected by damp sacking or straw. Exceptionally long and bruised roots should be pruned back before planting.

Well-planned shelter. Eucalypts in the distance to stop the bad winds, and hedges and trees for shade in the middle distance.

## *Propagation by Cuttings*

The term "cutting" may be applied to any part of a root, stem, or leaf cut from a plant and used for propagation by rooting. Usually yearling wood is selected for cuttings, which form roots best if cut through just below a node. Care must be exercised in planting cuttings. They should be laid in a trench the side of which is an angle of 45 deg. to 50 deg. Make sure that the earth is well firmed with the heel at the base of every cutting so that there are no air pockets in the soil. Plant during late winter when the weather is favourable and the soil not too wet. Surface cultivation with a hoe is necessary during spring and summer to conserve soil moisture. Most hedge plants and some shelter trees can be raised from cuttings.

Shelter trees such as *Cupressus Lawsoniana, Cupressus torolosa,* and *Cryptomeria elegans* may be raised from cuttings in the following way: During March select lateral shoots of the current season's growth 4in. to 6in. long and pull off with a heel from the central stem of the branch or sub-branch. Strip off side leaves for a third of the length from the heel end, and, with a sharp knife, trim the rough end of the heel and take off the tag end of loose bark. Plant the cutting in a 4in. to 5in. layer of soft, earthy sand placed on top of well-dug soil under a frame with sides 8in. to 9in. covered with scrim. The cuttings may be packed really close together in the sand in the same way as other cuttings are planted. Keep well watered regularly during dry weather. When winter rains start watering should cease. When the soil warms up at the beginning of spring plant out in nursery rows in the same way recommended for cuttings. Firm earth with the heel at the base of each cutting. Cultivate the surface regularly and water with a hose during dry periods. Wrench during April, as recommended for seedlings, and, later, lift from each row sufficient to leave the remainder about 18in. apart. The latter should remain for another year before being planted out. Lifted plants may be set out 18in. apart in nursery rows also 18in. apart.

There are certain advantages in propagating by cuttings. Plants raised from seeds may be of mixed types, but plants raised from cuttings which may be taken from one type of tree will themselves be all of the same type.

* * *

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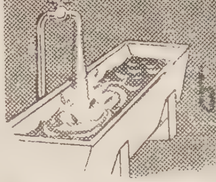

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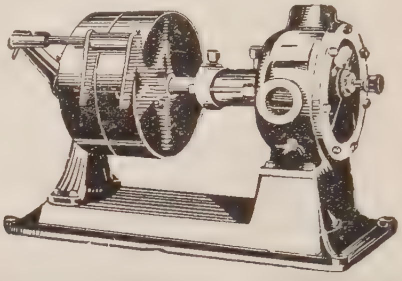

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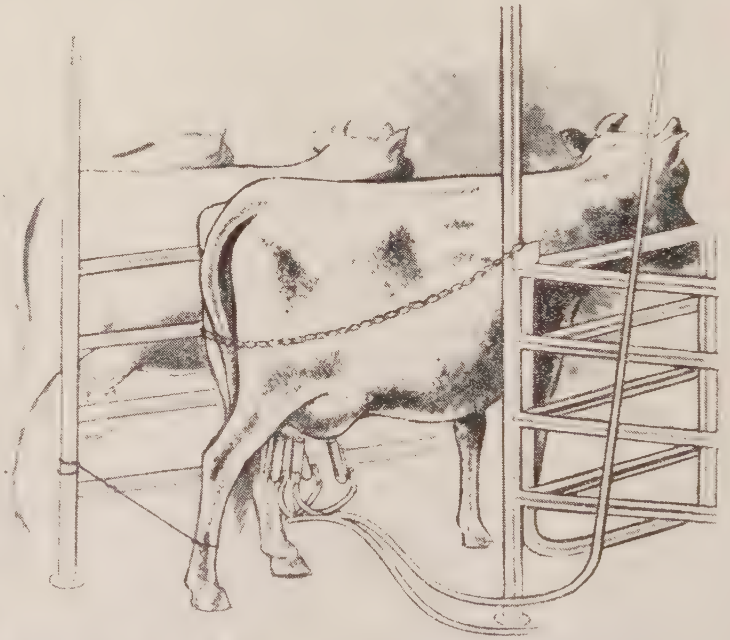

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# The Home Garden in June

*By* D. K. PRITCHARD, *Instructor in Vegetable Culture, Wellington.*

**THE selection of seed potatoes from the crop just harvested, or, if the home gardener's stocks are diseased or otherwise unsuitable, the arrangement of early seed supplies should be the main concern at this time of gardeners who have sufficient room for the growing of this crop. Ground may also be prepared for early spring crops and seed of some varieties planted.**

IN June the home gardener is on the threshold of a new season, the success of which may be ensured by the preparation of the soil whenever weather permits.

## *Potatoes*

Where growing a potato crop is of considerable economic importance, it is not advisable to look over a few sacks of tubers which may be in store and select seed haphazardly. If the crop from which seed is to be saved is grown from a special strain, plants should be marked with a stake when they are in full growth.

**The selected plants should be vigorous and completely free from disease. In addition, they should be kept under observation up till the time of harvesting. If at this time the plants still remain free from disease, the seed may be selected immediately after digging. Unless these precautions are taken, buying approved seed for the next planting is the safest course.**

Stable or farmyard manure to be used on the area where the next potato crop is to be grown should be applied without delay, and dug in as soon as conditions are favourable. Soil left in the rough after digging will be considerably improved in texture by exposure to winter weather, and a better tilth will be secured in which to plant the seed.

The selected tubers should be placed "rose" end up in seedling boxes, and kept where they will get plenty of light and fresh air, but not exposed to frosts. Kept under these conditions, the shoots from the seed will develop strongly and be hardened off before planting time.

Variety to grow is largely a matter of choice, but in any district where success has been achieved with a particular variety a change is not recommended.

## *Rhubarb*

If it is intended to remove some of the rhubarb roots from their present place in the garden, June is the month when this should be done. To dig out rhubarb roots, a good, strong spade is the most suitable tool. When the roots have been dug out, some, but not all, of the soil adhering to them should be removed before placing them where they are to remain till the now-dormant buds begin to shoot. They should be placed where the sun will not shine on them, and where they will not be exposed to drying winds. The ground should be cleared of weeds or other growth before the roots are put down on the soil. Should the roots at any time appear to be dry, a few buckets of water thrown over them will wet them sufficiently. If not required for further propagation, they can be chopped up with the spade and dug into the soil. Cut small enough, they will soon decompose and add organic matter to the soil.

## *Cauliflower*

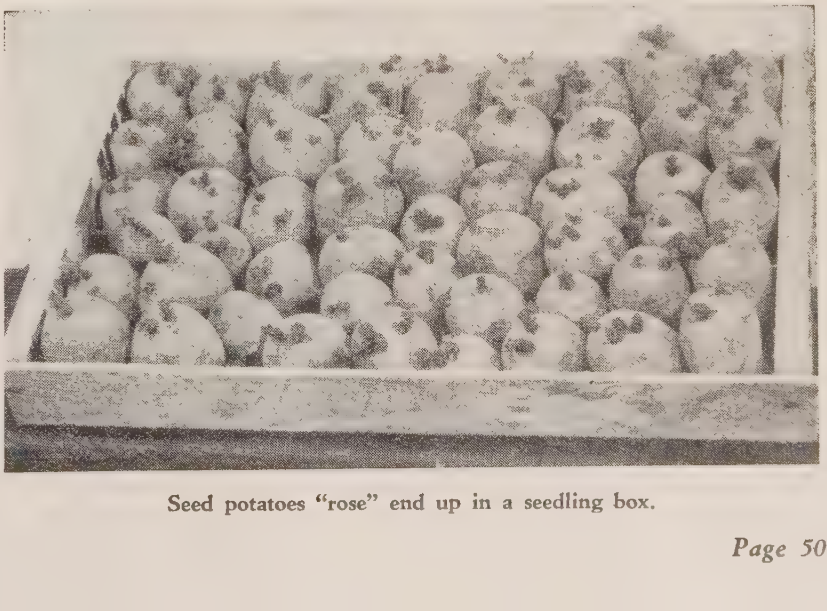
For production of early cauliflower seed may be sown about mid-June. Better results are likely to be obtained if a seedling box is used for a seedbed, the seed sown sparsely in shallow drills, and lightly covered with a mixture of compost and sharp sand. When the seedlings are about 2in. high they may be transplanted, either into a frame in which they can be protected during bad weather, or into another box with not less than 6in. of soil, which will allow for sufficient root development till the plants are set out in the garden. Knowledge and experience are required to grow early cauliflower successfully, but the main cause of disappointment with the crop can invariably be traced to lack of proper attention to plants, particularly during the seedling stage. Early cauliflower plants should never be checked at any stage of growth. Early London is recommended as a suitable variety.

## *Cabbage (Savoy)*

During June, Savoy cabbages are likely to suffer more damage from slugs and snails than from any other cause. Unless something is done to destroy these pests, the best part of the heads of this valuable winter vegetable may be lost. While there are several methods which can be adopted to protect the plants, all are more costly and none more effective than regular applications of freshly-burnt or hydrated lime, the latter preferred, because of its extreme fineness. It should be broadcast in the evening and thrown with considerable force along the rows between the plants. If this is done, some of the lime will rise, coming in contact with slugs on the under-side of the leaves, while those on top of the leaves will be caught by the lime which falls.

## *Lettuce*

In favourable districts a small sowing of lettuce seed may be made, provided protection is given to the young seedlings after germination takes place. The seed should be sown thinly, as this is the best means of preventing the plants being later affected with mildew, which may destroy all the plants in a single night. During June pricking out lettuce seedlings may be advisable, as by this means more stocky plants with an abundance of good roots will be secured which will withstand the effects of subsequent transplanting. To secure early-hearted lettuce the extra labour involved is worth while. For this planting blood and bone manure is considered best. It should be broadcast at the rate of 4oz. per square yard over the area to be used and worked into the soil 2



**Seed potatoes "rose" end up in a seedling box.**

to 3 weeks before the seedlings are set out. Webb's Wonderful and Success are varieties which can be recommended.

## *Onions*

Seedlings for the onion crop to be planted out in August should now be well forward. When there is a tendency for these to become "leggy," it is common practice to cut from 1 to 2in. off the tops of the plants, taking care not to injure the central growing point. This top pruning is stated to influence better root development in the seedlings.

Where practicable, the part of the garden in which the onion crop is to be planted should be dug over some weeks before the seedlings are ready to plant out; this particularly applies to light soils. Ground turned over now would be consolidated before planting time. For successful onion growing, a firm seed-bed is necessary.

## *Broad Beans*

May and June are suitable months for sowing seeds of broad beans. Deep digging to ensure good drainage is necessary, as the plants, which require cool weather conditions, will not tolerate a waterlogged soil. In a trench 3in. deep seed may be planted to a depth of 2in., or the trench may be dug out 3in. deep and 6in. wide and the bean seed "staggered" on the bottom to a depth of 2in. "Staggering" is to so place the seed that, when the plants begin to grow, they will not be opposite each other, which will permit more space for development. Where broad beans are grown in rows, these should not be less than 3ft. apart and the seeds spaced 4 to 6in. in the row. Suitable varieties are Broad Windsor and Early Long Pod.

## *Radish*

In favourable localities radish seed may be sown all the year round. Whether to grow a globe-shaped or long variety is a matter of individual choice. The seeds of both are vigorous in germination, and the plants are quick growing, good sized, usable radishes being produced in from 30 to 60 days. It is not advisable to make large sowings of seed to supply ordinary household requirements. A very small quantity of seed sown every two weeks will keep up a continuous supply of tender roots. Long Scarlet, Scarlet Globe, and French Breakfast are recommended varieties. When mature, the last-mentioned variety should be used without delay.

Chinese Winter White or Celestial, which grows 7 to 8in. long, will mature in from 55 to 60 days, and remain in good condition longer than other radish varieties.

## *Spring Onions*

Another popular salad crop is spring onions. During June a sheltered part of the garden, preferably facing east, should be chosen for the seed-bed. If the part selected is low-lying, it is advisable to make up a raised bed so that good drainage will be provided. To obtain small spring onion bulbs the seed can be broadcast thickly on top of the prepared part of the garden, raked in, and lightly covered with soil. White Lisbon is the variety used for the propagation of spring onions, but as seed is not at present available, one of the Early Straw Spanish varieties may well be substituted.

## *Carrots (Spring)*

As spring carrots may be in short supply during the next few months, an early sowing of seed should be made as soon as soil conditions will permit this to be done. A suitable place for a carrot bed is where farmyard manure or compost was used for a crop of cabbages which have now been harvested. Abundance of organic matter and friability of soil provide the conditions which are necessary for high-quality carrot production. Seeds of Champion Scarlet Horn, Earlykrop, or Chantenay may be sown. Where the top soil is shallow and a raised bed is not made up, it is better to grow a stump-rooted variety. If seed is sown sparsely in rows 12in. apart, and the bed not more than 4ft. wide, subsequent work may be done without treading on the soil between rows.

## *Lime*

**The use of lime on most soils in any part of the Dominion appears to be justified, and from recent observations it seems to have become particularly necessary on commercial vegetable - producing areas. It is invariably referred to as carbonate of lime, quick lime, or burnt lime. In any of these forms it is useful on soil, and has been used in agriculture since man began the cultivation of crops. There is evidence, too, that earliest applications were in the form of calcium carbonate, and it is in this condition that lime is mainly used by farmers throughout New Zealand. Evidence is not lacking that calcium carbonate is the best form in which lime can be applied to soil for vegetable production.**

On areas where brassica crops are regularly grown, and especially when sulphate of ammonia is used as a fertiliser, heavy annual dressings of lime up to and exceeding 1 ton per acre (6 to 8oz. per square yard) are necessary to maintain what may briefly be termed bacteriological equilibrium in the soil.

Calcium is a metal, and when applied to soil supplies a base by which acids which may exist become neutralised. Where green manure crops are grown, or where stable or farmyard manure is used for soil improvement, the use of lime is indispensable for the continued production of high-quality vegetable crops. Any part of the home garden from which a crop has been harvested, and which is now being turned over, will be benefited by a dressing of carbonate of lime, familiarly known as agricultural lime, at the rate of 4oz. per square yard.

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DON'T keep seed potatoes in a badly-lighted shed or in a bag. If it is not convenient to put the tubers in boxes, they should either be spread out on the floor of a shed and exposed to light and fresh air, or placed under trees where they will be protected from frost.

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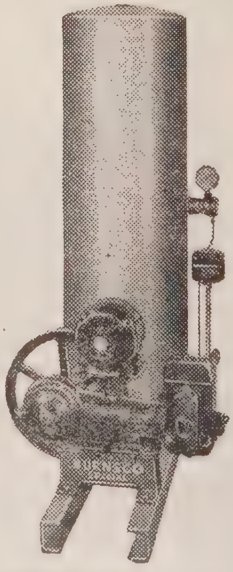
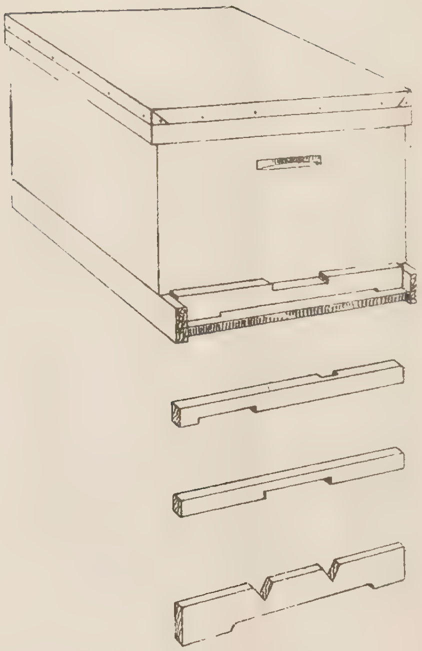


# Winter Care in the Apiary

*By* E. J. SMELLIE, *Apiary Instructor, Christchurch.*

BROOD-REARING has now ceased in most districts and the bees, with their hive strength considerably diminished, are more or less inactive. There is usually sufficient chill in the air at this time of the year to cause the bees to readjust their hive requirements to the colder temperatures. For this reason the final closing-down arrangements, essential for the successful wintering of colonies, should be completed without further delay. If the temperatures are low, however, beekeepers should exercise caution when opening hives and should not attempt any manipulation that will unduly disturb the bees or cause them to become scattered and chilled.



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DURING the damp, winter months considerable moisture frequently enters the hives, even though the roofs and hive parts are both rainproof and sound. It is therefore a wise precaution to lift the covers occasionally and see that the mats covering the frames are dry. Any damp mats should be removed and replaced with dry ones. This will greatly assist in maintaining dry conditions and prevent the bee-combs becoming mouldy.

Where the apiary is situated in a damp or low-lying location it is a good plan to raise the hives a few inches and to remove any long grass or other growth that will prevent sunshine from reaching the base of the hives. This will tend to keep the hives free from slaters (wood-lice) and other insects, and will ensure a free current of air beneath the bottom boards, which will assist in maintaining dry conditions within the hives. All hives should have a slight cant forward so that rain will drain off the alighting boards. Colonies that are strong in bees will have little difficulty in keeping their hives free from moisture, provided the roofs and hive parts are sound.

## Compact Cluster

In most parts of the Dominion winter temperatures cause the bees to conserve warmth in the hives by forming a compact cluster over the empty brood-cells that are immediately adjacent to the supply of sealed honey stores. Bees are capable of generating heat within the cluster and of retaining the correct temperature under the changing weather conditions by the consumption of honey and the expenditure of physical energy.

Hives reduced to one or two stories in winter should contain ample stores of honey (not less than 40lb.). With this supply average-strength colonies will conserve stores, and will usually emerge from their winter quarters in a vigorous and healthy condition, provided they are accommodated in sound, draught-proof equipment.

Temporary manuka scrub shelter.

## Removing Empty Supers

Some beekeepers prefer to leave spare supers of empty combs on the hives as long as possible, but all spare supers should be removed now and placed under suitable cover. When empty supers are allowed to remain on a hive during the winter months, the heat generated by the cluster rises, and occasionally the bees will follow it to re-establish themselves in the empty top combs. This movement involves the colony in much unnecessary disturbance and activity, causes a greater consumption of stores, and wears out the bees.

The removal of all spare supers from the hives in the late autumn also ensures that the bees will store any honey gathered late in the season in combs where it will be ripened. Honey stored in combs away from the colony cluster is likely to become sour, or ferment. Unripe or fermenting honey consumed during the inactive period in winter may have a detrimental effect on the bees by causing dysentery or the too-rapid accumulation of faecal matter. Colonies of bees affected in this way often become a total loss to the beekeeper.

## Apiary Shelter

In apiaries where hives are exposed and natural shelter is not available, it would be an advantage to protect the hives with a breakwind. Manuka or similar scrub placed between tightly-

Suitable permanent shelter.

strained wires of a fence will provide adequate protection, but where scrub is not easily available, sacks or sheets of iron will serve as a temporary makeshift until a suitable type of hedge can provide permanent shelter.

### *Entrance Blocks*

During the winter and spring months mice sometimes enter the hives and cause much damage by attacking the honey stores and by building nests in the combs. To prevent this all hive entrances should be contracted. A satisfactory mouse-guard can be provided by tacking a strip of wood across the full width of the summer entrance, having first cut from the lower edge a slot 2in. long x ⅜in. deep.

### *Painting Hives*

When paint is applied to hive equipment regularly the appearance of the apiary is improved and good-fitting material is preserved in a sound condition. This is an important factor in the successful wintering of bees. Occupied hives requiring a coat of paint should therefore be attended to before bad weather has set in. All cracks and openings in any supers should be closed before painting.

If the fronts of the hives are painted first, the bees will usually remain quiet until the remaining sides have been painted. The smell of paint has a similar effect to smoke in keeping them subdued.

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# PRUNING OF YOUNG FRUIT TREES

**IN last month's Journal advice was given on the preparation of fruit trees for the pruning season. In this article A. R. Grainger, Orchard Instructor, Christchurch, discusses the pruning of newly-planted and young non-bearing trees. He deals with both stone-fruit and pip-fruit trees.**

FRUIT trees received from the nursery are one-year rods, one-year branched trees, or two-year branched trees. Branched trees, if two years old, will save the grower one season of waiting for a crop, providing the branches are well spaced and have the making of a satisfactory tree. Branched trees one year old, however, are often of poor shape, which necessitates pruning them back to rods, with no advantage gained over one-year rods.

In pruning young trees, the object is to build the foundation for a strong framework which eventually will be able to carry heavy crops of fruit without breakage of limbs.

If the new tree is a rod, it must be headed back to about 18in. above ground level (Fig. 1a). If it is a well-branched tree, the pruner should select three branches evenly spaced and fairly upright, remove all the remaining ones, and cut back the three to be retained between six and nine inches (Fig. 1b). Each tree must be cut so that the first two buds at the top are in a position which will ensure the resultant growth giving two evenly-spaced leaders from each one of the three branches retained (Fig. 1c).

## *Systems of Pruning*

The principal systems of pruning are hard, moderate, and long pruning. In the first-named the previous season's growth at the top of the leader is cut hard back to within a few buds at the base, and any laterals growing from the leaders are treated in the same way (Fig. 2a). With moderate pruning the new growth is cut back each year, but not nearly to such an extent as in hard pruning (Fig. 2b). In long pruning the whole of the previous season's growth on the leader is left untouched. Lateral growth is also left, but surplus laterals are removed entirely (Fig. 2c).

The merits and demerits of different pruning systems have been the subject of many discussions and demonstrations and are likely to be wherever growers foregather. Long pruning has perhaps caused more doubts and confusion than the others, but good and bad examples can be found with each system. For building up a tree quickly long pruning is successful in some districts and with some varieties of fruit trees, but growers are not recommended to adopt it without a careful study of local conditions. Generally it may be stated that if a leader is left unpruned for the first year it will grow strongly, in the second season it may grow fairly well, but after that growth will slacken off considerably; to promote growth again it will be necessary to cut well back into two-year-old wood, and the grower is not much further ahead than if he had cut back moderately each year. Also, there are some varieties of apple tree which do not furnish with lateral growth if the leaders are left unpruned.

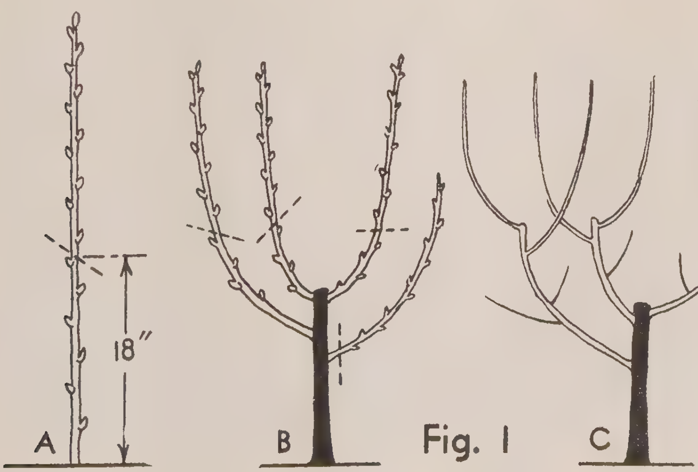
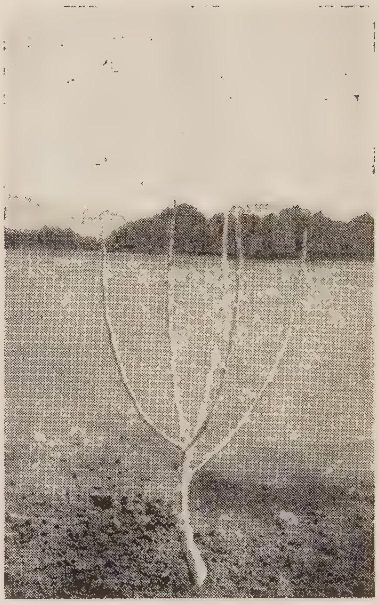


Fig. 1



**An unpruned two-year Dougherty apple tree.**

If the long-pruning system is to be employed it is usually started on a young tree on which five or six leaders have been obtained. On heavy land, and where shelter from high winds is adequate, peaches and nectarines may be left unpruned at the top of the leaders, but laterals should be thinned out more or less alternately along the limbs (Fig. 3a). Those removed should be cut back to base buds. The following year new growths will start from these buds, which are retained for fruiting while laterals which were left to bear fruit the previous season are removed or cut back to some new shoot closer in to the leader. The latter practice is preferable. Laterals retained may be left unshortened unless they are particularly long or too weak to bear the weight of one or two fruits.

The following year most of the laterals will have extended further and additional shoots will have grown from the two-year-old wood. In these cases a cut is made back to the side shoots (Fig. 3b), as it is undesirable to allow laterals to extend too far. Because of the habit of the peach and nectarine of bearing only on the one-year-old wood, if laterals are allowed to extend too far they become devoid of fruit close in to the main arms, where it is less liable to be damaged or blown off.

In good heavy land the leaders of peach trees will grow six to eight feet in a season if left unpruned. In two or three years the trees will be the full height required. They are then kept in bounds by shortening the

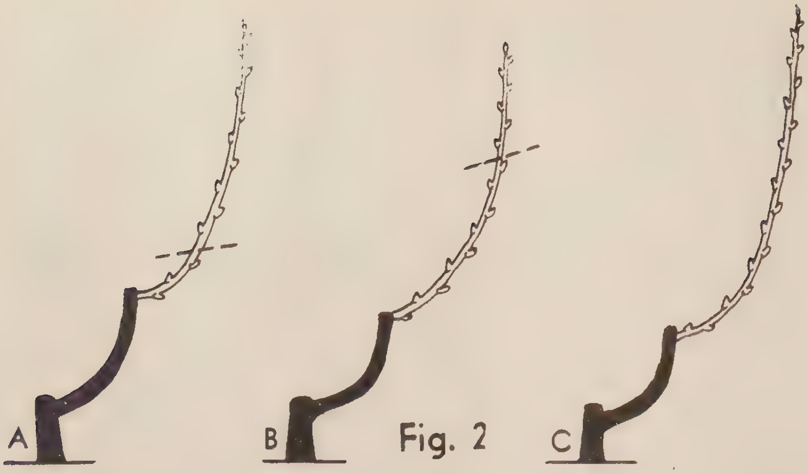


Fig. 2

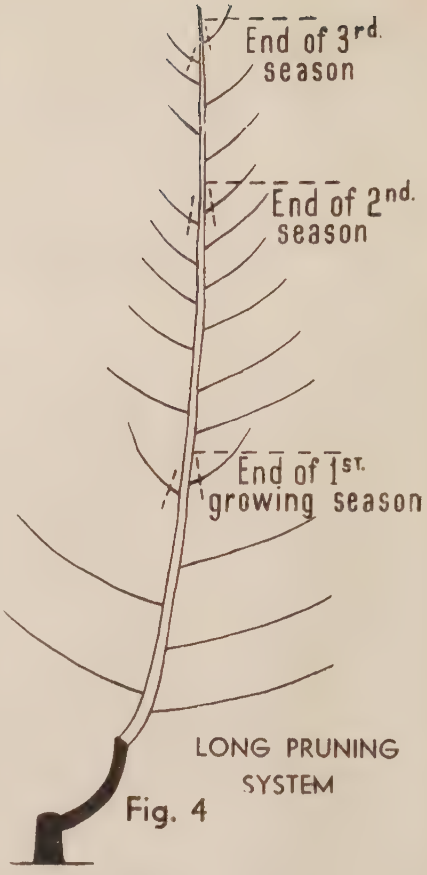


Fig. 4

leaders back to laterals growing in the desired direction.

### *Building up Framework*

One of the most important aims when building up the framework of young trees is to "define" the leaders and make their growth dominant. Unless that is done the shape of a tree may become unbalanced and the leaders or main arms weak and too numerous. Even when using the long-pruning system, care must be taken to make the leaders dominant each year when a tree is building up to full size. Fig. 4, which depicts one main arm of a tree, illustrates the method of pruning so that the object may be obtained—a strong leader growing in the right direction. The pruning at the top of the leader has been made to an outside bud each time, but this is not a rule for all varieties. Should the leaders of a tree tend to grow more horizontally than upright, an inside bud should be the one left at the apex of the leader.

Stone-fruit trees such as apricots and plums have different habits of bearing from those of peaches, and the pruning has to be modified accordingly in the mature trees. The treatment of leaders when building up young trees is the same as for other kinds of fruit. With most plums and apricots the best size and quality of fruit are produced on the younger wood. The pruner should aspire to have old weaker-fruiting wood replaced with new growth. Burbank plums respond well to this treatment by the production of better-sized fruit on the younger, more vigorous wood.

### *Apples and Pears*

Apple and pear trees are built up on a system similar to that used for stone fruit, but generally they are longer in coming into bearing. In the early years the first concern of the pruner must be to build a strong framework, but the production of fruit-bearing laterals and spurs soon requires attention. Five or six main arms may be considered sufficient if they are amply furnished with well-spaced heavy laterals capable of bearing large crops of fruit. Laterals should be about a foot apart, so that adequate light may reach fruit and wood, both may ripen properly, and fruit spurs may be produced freely.

Delicious apples will grow laterals very freely if the leaders are left unpruned, but other varieties, such as Granny Smith, Dougherty, and Jonathan, will not furnish well unless the leader is shortened each year. This temporarily checks top growth and stimulates the buds lower down to wood production.

More particularly on good land, young trees which do not settle down to fruit production as early as expected may be brought into bearing by allowing the laterals to go unpruned for a season, and even leaving on the tree surplus wood which will eventually have to be removed when it becomes overcrowded.

**(Further advice on pruning will appear in the June issue).**

### Measurement Tables.

Units of measurement may be converted by the following simple table:

| | | |
|---|---|---|
| Ins. to cms. | Multiply by | 2.540 |
| Yds. to metres | ,, | .900 |
| Miles to kilometres | ,, | 1.600 |
| Sq. ins. to sq. cms. | ,, | 6.450 |
| Cub. ins. to cub. cms. | ,, | 16.400 |
| Grains to grams | ,, | .065 |
| Lb. to kilograms | ,, | .450 |
| Cub. ft. to cub. metres | ,, | .030 |
| Cub. yds. to cub. metres | ,, | .760 |
| Cms. to ins. | ,, | .400 |
| Metres to yds. | ,, | 1.100 |
| Kilometres to miles | ,, | .620 |
| Sq. cms. to sq. ins. | ,, | .155 |
| Cub. cms. to cub. ins. | ,, | .060 |
| Grams to grains | ,, | 15.400 |
| Kilograms to lb. | ,, | 2.200 |
| Cub. metres to cub. ft. | ,, | 35.300 |
| Cub. metres to cub. yds. | ,, | 1.310 |

One cord of firewood measures 128 cub. ft. and is generally placed in a stack 8 ft. long by 4 ft. wide by 4 ft. high.

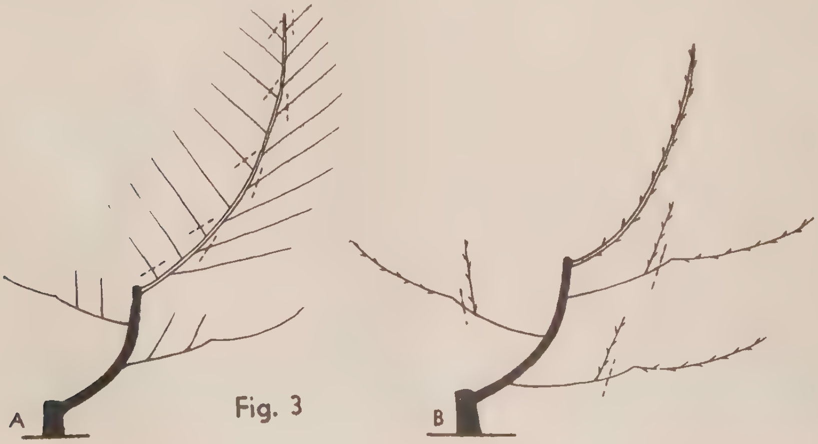


Fig. 3

# Feeding Chou Moellier and Roots to Sheep

*By*

**K. M. MONTGOMERY,**

*Fields Instructor, Te Kuiti.*

A good crop of chou moellier.

**THE feeding of supplementary crops to sheep during the winter has a very large bearing on the returns which can be expected from the flock, either in wool or in weight and health of the lambs.**

For wool production, the flockmaster aims to keep the sheep in thriving condition from shearing to shearing. If sheep experience a period of low rations during the winter, it is nearly always reflected by a "break" or weakness in the staple; the wool buyer will then lower the price he is prepared to pay for an otherwise attractive offering of fleece wool. The in-lamb ewe will produce stronger and heavier lambs if she is kept fully supplied with clean, succulent, and nutritive fodder during the whole period of pregnancy.

To obtain the best results from the feeding of crops it is essential to cut the field into a number of breaks, so that the stock will be put on to a fresh area every two or three weeks. It is far healthier for the animals to have access to small fresh breaks than to be eating fodder which has been trodden on and fouled with animal excreta for a long period. In erecting fences for the breaks the probable length of time the field will be in use should be considered. It might be advantageous to divide the field into two with a good fence of netting, strained up, from which temporary fences are run off at right angles to give the size of breaks required. For these side fences, sheep netting tightened by staggering the stakes should be satisfactory.

## *Hoggets Have First Use*

During the winter the central pair of milk teeth in hoggets is loosening up, shortly to be replaced by the first two permanent teeth. During this period hoggets cannot be expected to break into the hard bulbs of swede turnips. They should be given the first use of the crop so that they can clean up the tops of the roots or the tenderest portions of the chou moellier. Sound-mouthed ewes can then be fed on the bulk of the bulb, and finally the shells can be cleaned up by the non-breeding sheep which are to be only maintained in condition. If deep-rooted varieties of swedes have been sown, the cultivator fitted with wide shoes will lift the shells out of the ground unless the soil is heavy and packs hard. If the chou moellier has thick stems, cattle can be turned in to clean these up.

In districts where frosts are heavy, the sheep should be removed at dusk and not allowed on again until the frost has thawed out. In most districts of the North Island sheep could be let in on the crop at about 10 a.m., but in many parts of the South Island it would be wiser not to allow them on until after mid-day. When feeding roots to sheep a good "run off" is necessary. If grass roughage is short, chaff fed in feeders, or baled hay set up in stacks or loose in racks made of netting, should be made available. Some roughage is necessary to balance the diet and assist the normal digestive functions of the animal.

Sheep grazing on swedes.

# CARE NOW PAYS DIVIDENDS IN THE FUTURE

*A flamethrower is death to germs.*

*Overhauling to ensure safe running.*

*Repairs and replacements prevent breakdowns.*

*Everything clean and ready for the season.*

# Preparing for the Brooding Season

*By* S. G. HADDON, *Poultry Instructor, Wellington.*

**IN chick brooding and rearing the maintenance of cleanliness should be the aim of the poultry farmer. This is not because a clean house and equipment look pleasing, but because clean surroundings and brooders are definitely safer for young stock, and give better results in use. It is cheaper to spend time and labour giving the brooder side of a farm a thorough annual clean-up than to scamp the work and "make do."**

Clean the brooder house.

THE time for the work is at the end of the brooding season as soon as the last batch has gone through, not at the beginning of the new season. The following points should help those farmers whose brooders still require attention.

Start with the brooder house. Give the walls, roof, floor, and wire fronts a thorough brushing with stiff brooms. Cobwebs on wire fronts may be removed easily and quickly by two persons brushing both sides of the wire simultaneously with hard brooms. It is sometimes possible to do this work with a high pressure hose.

After all loose dirt, dust, cobwebs, and litter have been swept out, wash the floor and walls to a height of 3ft. with water and a commercial disinfectant. Allow the water to lie around on the floor to soften any droppings which may then be scraped off. After a final swilling, the floor should be dried off.

This treatment, of course, can be applied only to wooden or concrete floors. Earth floors will not stand it, and instead the used floor should be dug out to a depth of 12in. and replaced with fresh dry soil obtained from an area which has not had poultry running on it.

## *Disinfecting Building*

Once the brooder house is clean, the whole of the building should be disinfected. A satisfactory method is to use a 10 per cent. solution of caustic soda, wetting the walls and floors thoroughly. The disadvantage of this method is that after the caustic solution has been in contact with the walls and floor for some hours it has to be washed off with plenty of clean water, otherwise caustic burns may result on both attendant and stock who subsequently use the area. There is no doubt, however, that the job of disinfection by this method is a thorough one. Again it is not a suitable method for earth floors. As an alternative to caustic soda, any of the commercial brands of disinfectants may be used, and should be applied according to the maker's instructions.

A third method which may be employed is the application of scorching heat to all surfaces by using a flame thrower or plumber's blow lamp. Great care must be exercised when treating creosoted woodwork. **Never treat freshly-creosoted work with heat, otherwise a disastrous fire may result.**

The brooder house may now be regarded as clean, and any structural defects, repairs, or alterations should receive attention without delay. These may be few or many according to the standard of repairs previously maintained on the farm.

**It is useless having a clean and spotless brooder house if the attached runs and service path are in a dirty and bedraggled state. Brooder house runs should be reserved strictly for chicks only. Steps will have to be taken to keep these runs in order between brooding seasons, or to make use of the area of land involved.**

This is most easily accomplished by utilising the brooder runs as greenfeed patches during the off time of the year and putting them down to grass in time for the forthcoming brooder season. They could, of course, be down in permanent pasture, but would then require mowing or grazing (a few cull lambs or hoggets are very useful in this respect). The grass runs should be in good heart, well drained, and cut or grazed fairly short so that young chicks do not get lost or caught up in long, over-grown rank grass. See that any subdivisions are in good order, and have no tears or gaps. If the bottom edge of any netting used for this purpose is rusting away, place creosoted 6in. x 1in. planks on edge all round the lower portions of the runs so that the chicks cannot get mixed.

## *Cleaning the Brooders*

Next the brooders themselves should receive attention. Cleaning kerosene-heated metal canopies is a simple job. They can be immersed, soaked, and scrubbed with washing soda, hot water, soap, and a hard brush. They can also be scorched with a blow lamp.

Built-up, flat-top canopies such as the Hayman type or metal canopies with built-in electric elements must have different treatment, though much may still be done with soap and water. "Dry cleaning" may have to be used, and to do this a wire brush will be necessary. Remember that strong sunshine has a beneficial effect, and make use of this by giving all cleaned canopies a thorough airing in the sunshine.

Canopies should be examined to see if any repairs are necessary These may include removal of bad dents, replacing broken-off legs, and attention to any switches, sockets, and wiring on them. Attention should be given to the cut-outs and switch connections of canopies with thermostatic control. Examine all flexible leads and replace any which are beginning to chafe or which have cracked insulation. Such leads may be dangerous and their continued use conducive to fire. Where canopies are supported by cords and counter-balance weights, examine the cords and replace any worn ones. Replace the bundle of bricks at one end with neat safe bags of sand. The bag of sand is not so liable to cause injury should the attendant inadvertently knock his head against it while attending to the chicks. See that the pulleys, over which the cord works, are also in good order.

A number of poultry farmers use kerosene-heated canopies converted to electric use by replacing the lamp with radiator elements suitably shielded with close mesh wire guards. Make sure that the porcelain portions of these elements are sound, as cracked or broken porcelain may be responsible for a dangerous short circuit.

With kerosene lamps, the usual precautions should be taken of replacing all used wicks with new ones of the correct size. Before doing so it is wise to boil the burners in strong washing soda water and dry them off quickly in a hot oven. This treatment is to remove all the old carbon deposits from previous seasonal work. At the same time make sure that the wick elevating mechanism is in good order and functions properly. Inspect the oil wells for leaks or other weaknesses, and remedy any that are found.

If wire frames are used in the brooding, they will require cleaning, disinfecting, and repairing before use. Exposure to several hours' heavy rain will work wonders in softening accumulations of droppings. A hose pipe and stiff broom will then do the rest followed by disinfection with a commercial brand or with a blow lamp.

### *Small Equipment*

The next step is the cleaning of items of small equipment which include troughs of various sizes to suit different ages of chicks, dry mash hoppers, drinking fountains, and grit hoppers. All these appliances need a thorough scrubbing and disinfecting followed by any necessary repairs.

The final stages are reached by sorting out the brooders, frames, and equipment into "units," and storing one unit in each brooder compartment. Each brooder compartment should contain one brooder canopy, a wire frame (if these are used) and sufficient hoppers, troughs, and drinkers to cope with whatever number and age of chicks the section will be required to handle.

Any equipment not actually in use may be stored in racks on the walls, or tucked out of the way on the rafters. One final word, do not forget to lay in adequate supplies of floor litter, of which chopped straw is easily the best.

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## Chick-sexing Examinations

THE Department of Agriculture announces that examinations will be held in Wellington for the chick-sexing certificate offered by the Department to successful candidates during—

June, Wednesday the 19th.
August, third week.
October, last week.

Details of days and times will be supplied to applicants at a later date. Any person wishing to sit for the June examination is requested to apply before May 18 and one month prior to the approximate dates given for the other two examinations. Applications should be addressed to the Department of Agriculture, Box 3004, Wellington. Copies of the conditions under which examinations for chick-sexing are conducted may also be obtained from the above address.

## Radio Broadcasts

RADIO talks to farmers will be given from Station 1YA, Auckland, at 7.15 p.m. on the following dates:—

June 10—"Farm Seeds: New Strains and Varieties," by J. H. Claridge, Agronomist, Wellington.

June 17—"Milk Fever in Cows," by H. W. Carbury, Veterinarian, Auckland.

June 24—"Young Farmers' Club Session," by a representative of the Waikato District Committee.

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# Benefits of Irrigation Impress Canterbury Party

(This report was awarded first prize in a district competition for the best report on the field day.)

VISITS to the Highbank power station and the Lyndhurst-Ashburton section of the irrigation scheme in Mid-Canterbury were highlights of a most interesting and instructive field day for members of Young Farmers' Clubs in the North Canterbury district recently. The day was fine, and three large buses left Waipara at 7 a.m. with members from Amuri, Cheviot, Scargill, Omihi, and Hawarden-Waikari clubs. This party was joined at Rangiora by the district Y.F.C. secretary, Mr. E. C. Withell, of the Department of Agriculture.

A short break for morning tea at Oxford was very welcome, as some members had been on the road since an early hour. The work of the Oxford club in providing morning tea for such a large party was greatly appreciated. The Oxford members joined the party, which travelled on to Highbank by way of the Waimakariri Gorge. Members who had not previously crossed the river at the gorge bridge were amazed at the view of the river and the vast area of riverbed.

Passing Homebush, the damage recently done by wind to acres of beautiful trees was apparent even from the road. In this locality *Pinus insignis* trees are almost completely absent. In their place are Douglas firs, spruces, and many other kinds. Many brick buildings were seen around Coalgate, where a brick kiln is located. These buildings, especially the Homebush woolshed, are in excellent repair considering their age. Around Windwhistle and along to the Rakaia River it was evident that the many plantations and excellent belts of trees were necessary for shelter from the strong north-westerly winds.

### Giant Turbine

After viewing many miles of various soils and pastures and crossing the Rakaia Gorge bridge, the party arrived at Highbank. It was met by Mr. R. Inch, of the Department of Agriculture, Ashburton, and shown the power station, which has the largest single-unit turbine in New Zealand—28,000 horsepower. The water rushes down a great steel pipeline to the powerhouse after its 42-mile journey along the great diversion race from the Rangitata River. This power station is used only in the winter, the main purpose being to supply water for irrigation in the summer. In places the road that leads down to the power station was washed right out by the winter floods, the shingle partly burying several houses at the foot of the hill. It was only by hard work that the main building was saved from very severe damage.

The next stop was in Methven for lunch, supplied by the Methven Y.F.C. During the adjournment members were addressed by Mr. Limbrick, president of the Methven club, and Mr. A. Wilson, vice-president of the Methven branch of Federated Farmers, both of whom welcomed them to the district. Mr. O. D. Riddell, Public Works Department engineer, gave a general description of the irrigation scheme. The party then went up to the diversion race and saw the water being diverted from it into the race that supplies the Ashburton-Lyndhurst area of 68,000 acres. Following this race down to Winchmore, it was noted that it was siphoned under the roads and water could be diverted from it into subsidiary races. The drops in the race indicated the fall in the land, a feature which makes much of Mid-Canterbury easily adapted to irrigation. A paddock was being prepared for irrigation by a very powerful grader. The border-diking is carried out every forty feet or so, enabling the water to be controlled on strips up to ten chains long. In fair conditions the large grader can border-dike a mile a day.

### Effects of Irrigation

The party went to the demonstration area on the farm of Mrs. M. Hammond, at Winchmore. This property is light plains country.

**The normal carrying capacity is slightly better than a sheep to the acre, but this figure varies because of severe drought periods. Under irrigation, the average year-round carrying capacity (not counting lambs) is 5.9 sheep to the acre.**

The pasture has deteriorated very little, if at all, during the seven years the area has been under irrigation. The sward is still excellent, decidedly better than an average second-year pasture on similar country that has not been irrigated. The irrigated area shows practically no sign of grass grub.

The visitors were much impressed with the next practical demonstration on Mr. P. Curd's farm, "Winchmore," Ashburton. The land shown there is not particularly good, being light and stony. However, under irrigation it produced a fine stand of white clover. Only by seeing such an example could one believe that such a marked result could be produced. In this field could be seen the results of both too much and too little water. During the party's visit the field was irrigated, the exact amount of water being

## Address of Dominion Organising Secretary

THE Dominion organising secretary, Mr. S. Freeman, who was temporarily stationed in Palmerston North during the latter part of the war, recently transferred his headquarters to Wellington. All communications should now be addressed to

**The Organising Secretary,**
**Young Farmers' Clubs,**
**Department of Agriculture,**
**P.O. Box 3004,**
**Wellington.**

The North Canterbury party on Mr. P. Curd's property, "Winchmore," Ashburton.

measured in cusecs and let in from the head race to flow evenly down the strips.

The final demonstration was on Mr. Hilgendorf's property, where flooding had been carried out on an uneven field which had not been border-diked. The owner explained how, during a dry period, he had had the channels cut along the higher portions of his field, allowing water to flood and find its own level. This system, although perhaps not as thorough as that recommended by Mr. Riddell, has proved successful, for the pasture was first class where water had been applied.

The interesting day was drawing to a close, and in Rakaia afternoon tea was served. Mr. H. M. Cooper, president of the North Canterbury Y.F.C. District Committee, on behalf of the members thanked Mr. Withell for organising the field day, and Mr. Inch and Mr. Riddell for their help and cooperation.

It was an extremely happy party that began the return journey homeward, for all had seen something they would never forget. It was truly the greatest field day North Canterbury club members have had to date.

—R. M. THOMPSON, Amuri Y.F.C.

# Marton Y.F.C. Visits Woolstore

TWO carloads of members of the Marton Young Farmers' Club recently visited the New Zealand Farmers' Co-operative Distributing Company's woolstore in Heads Road, Wanganui. It was hoped that a busload would have made the trip, but because of seasonal work only a few members were free. Despite the smallness of the party, the trip was well worth while. It was also unfortunate that the appraisers arrived a day ahead of schedule, and the visit caught the Wanganui wool manager rather on the wrong foot.

Members were introduced to Mr. Lawson, the wool manager for New Zealand, and Mr. Foster, the Wanganui wool manager. Mr. Sarjeant, foreman of the store, conducted the party round. Mr. Lawson explained the valuation cards and showed how the value of any type of wool can be fairly estimated almost at a glance. The majority of wool coming to Wanganui goes into the B grade if properly skirted, and occasionally an odd lot finds its way to the BB grade. Wool that has any skirtings at all left on it is put down to C grade at once. Unless farmers are prepared to skirt their wool thoroughly they might just as well put all the bellies and pieces in with the fleece wool, for being in C grade it is worth the same as the partially skirted wool. Similarly, it pays to pull the seconds out of lambs' wool, but with small clips that is hardly worth while, as the over-all price is satisfactory enough.

With the return to the auction system next year, farmers will have to make a big change in their wool policy. The demand is going to be for the finer wools, and at present these are by no means in abundance. Under the appraisement scheme it has paid farmers to go for the weight yielded by the stronger wools.

The store in Heads Road has 1¾ acres of floor space, the greater part of which is taken up with storing wool from the past few seasons. One lot bore the mark of the 1942-43 season. About 22,000 bales are in store there, so the show floor space is somewhat restricted at present, though there is still enough to allow the wool to be displayed to advantage. As there were about 5,000 bales in the appraisal, there was a good selection of wool for the party to see.

## How to Roll a Fleece

Mr. Sarjeant first showed members the binned wool, which of course makes the best display. While at the binning floor, he demonstrated the correct method of rolling a fleece, which was new to his audience. After skirting thoroughly, fold the back wool well to the centre and roll the fleece from the tail to the shoulder; then throw the neck over and roll the ends in. The fleece then hangs together well and is shown to best advantage. While at this part of the store, members saw a demonstration of the new electric wool press, of which there are about three in the North Island and which cost about £350. The wool still has to be trodden into each half of the press, but thereafter all the work is done by electricity.

Mr. Sarjeant then conducted the party round the lots which were ready for appraisal. He pointed out how much simpler it was to grade wool when it was opened out alongside other wools. The quickest way to class wool is to look at the tips. If they are rather square the wool is fine, and if the tips are very pointed the wool is coarse. With Southdown wool especially, the colour is a very good guide for grading and a glance will suffice. One piece of information new to members was that true hogget wool is wool from sheep that have not been shorn as lambs, and so is very long in the staple.

There were many examples of wool which had been placed in a lower grading solely because of poor skirting in the shed. A small flock owner who wishes to skirt his wool is advised to bin his pieces if he puts them all together, as he is often forced to because of lack of space for all the sections.

Members also saw the means used to re-press an opened bale, and then the new four-pump hydraulic press for "dumping" the bales. This machine is also driven by electricity. The general layout gave the impression that the store is one of the most up-to-date in New Zealand. Mr. Lawson said it was the largest single-storey store in the country.

On behalf of the party the club secretary thanked Messrs. Foster, Lawson, and Sarjeant, and said members had had a most instructive afternoon. Mr. Foster said he welcomed visits from farmers, and particularly from young farmers, for although he could tell farmers a lot when he visited them during the winter it was by no means the same as seeing for themselves the wool in the store prepared for sale. He hoped that next year the club would be able to send many more of its members.

Those who made the trip this time can vouch for the value of such visits.

—MALCOLM F. GRAY,
hon. secretary, Marton Y.F.C.

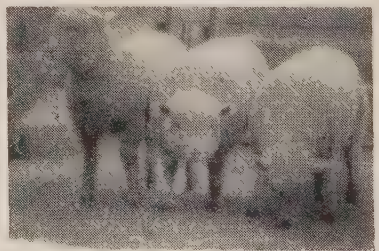
# Mosgiel Field Days

MEMBERSHIP of the Mosgiel District High School Young Farmers' Club is now 67. When two field days were held recently it was found necessary to divide members into two parties, the juniors visiting the farms a week later than the seniors.

Crops grown on Mr. Graham's property at South Taieri were inspected. The owner described the characteristics of each crop, the diseases which attacked them, and methods of cultivation. He also demonstrated the use of various implements.

On a visit to Mr. Imrie's farm the district Y.F.C. secretary, Mr. W. R. Lobb, of the Department of Agriculture, demonstrated and lectured on the main varieties of potatoes planted in the trials laid down by the club members.

—P. JACKSON, hon. secretary,
Mosgiel District High School Y.F.C.



**First prize pen of lambs entered by H. Gray, Huramau Native Scheme, in the Wairoa Y.F.C.'s fat lamb competition last November.**

# Marton Corresponds With English Club

## Youth Has Charge There

WHEN Mr. H. C. Kimpton, a past secretary of the Marton club, returned from England last year, he gave the club the addresses of two English Young Farmers' Clubs. One was the Wymeswold club in Leicestershire, to which a letter was written in December describing the working of the New Zealand organisation. The club was also told of a suggestion made to the B.B.C. that Y.F.C. broadcasts be made in the Pacific service as an added interest to members in New Zealand, where the organisation is taking on a new lease of life. The secretary of the Wymeswold club, a girl, replied saying that club had been most interested to hear from the Marton club, and they felt sure correspondence between English and New Zealand clubs would expand rapidly once the addresses were known. She intended writing to the B.B.C. about the suggested broadcast.

### English Organisation

At the time of writing the Wymeswold club had 25 boys and 24 girls on its roll, and the girls were as keen members as the boys. The age limit is from 14 to 25, and all club officers must be under 21. From that it would appear that the national federation caters for secondary school and university people rather than for the young farmers. In most respects the English organisation is similar to that in New Zealand. The federation contains more than 1,000 clubs with a membership of more than 50,000.

The national federation does not now control the clubs directly. For the past year the county federations have been self supporting and have controlled activities in their own areas. They work in close association with the national federation, which holds an annual general meeting in London each year. Clubs are represented by two delegates who have the power to vote, though each club may send as many spectators as it likes. Clubs are advised of all the remits which are to be put forward, and delegates vote according to the instructions of their club and not as individuals. There are 36 area organisers all over England and Wales. They correspond to our district secretaries, except that they are paid by the federation, and in the near future will be paid by the county federations.

### Advisory Committees

Each club has an advisory committee of ten or twelve farmers who are anxious to assist the farmers of tomorrow by giving advice on subjects which need practical experience. They hold meetings on their own, and periodically attend the club meetings. They are purely an advisory committee and have no power to vote at the annual meetings. It appears that these committees are necessary because the club officers are all so young.

It is surprising to find that the vice-chairman, secretary, and treasurer of the Wymeswold club are all girls. The club chairman said he could not imagine the club without girls. Arrangements are in hand for a "sister" organisation in New Zealand, which will find ready assistance from the Y.F.C. wherever it is needed

Pamphlets are being sent out from the Wymeswold club, but have not yet arrived. In the meantime the Marton club has forwarded a copy of the schedule for its sports meeting, a copy of the pamphlet issued by the federation on the Y.F.C. in New Zealand, the text of a radio talk given last year, a copy of the club's fourth annual report, and a report on the Wanganui district debating contest for 1945. These should give an idea of some of the activities of Dominion clubs.

Marton intends to try to make a contact with the other English club whose address it was given. The two addresses are:—

Wymeswold Y.F.C., Seagrave, near Loughborough, Leicestershire.

Market Drayton Y.F.C., Shropshire.

—MALCOLM F. GRAY,
hon. secretary, Marton Y.F.C.

# Interclub Cricket

A CHALLENGE by Pukekawa to any Young Farmers' Club resulted in the first Y.F.C. interclub cricket match in the Auckland district. The Clevedon team, led by F. S. Atchison, the Dominion president, went to Pukekawa to accept the challenge, and won not only that match but a return one played in Clevedon.

In a game of varying fortunes, Clevedon made 86 runs, to which Pukekawa replied with 48. Disaster overtook Clevedon in their second innings. After losing two wickets in the first over, the whole side was dismissed for 26 runs by the Pukekawa bowlers H. Cathcart and P. Savage. That left Pukekawa with 65 runs to score for a win, but good bowling by G. Waller, B. Ryburn, and M. Waters kept the batsmen very subdued, and Pukekawa were all out for 37. Clevedon won by 27 runs.

In the return match Clevedon left no doubt as to the result. They made 162 runs, R. Dow playing a fine innings for 66. Pukekawa replied with 103 (H. Gerraghty 24, P. Savage 21). Clevedon declared their second innings closed at two wickets for 44 runs, setting Pukekawa the task of making 103 in three-quarters of an hour. Good bowling by R. Dow and R. Murray kept Pukekawa's total down, and with three minutes to spare the last wicket fell with the score at 40, leaving Clevedon the winners by 63 runs.

Both these days were thoroughly enjoyed by everyone, not only for two days of good sport but also for the personal contact with members of another club. Both clubs are now eager for more interclub contests, and it is hoped that a full programme of such games can be drawn up.

On their return journey from Clevedon members of the Pukekawa team had a good view of the Meteor jet plane during its display of flying to the crowds of visitors at Ardmore aerodrome.

—B. LOGAN, press reporter,
Pukekawa Y.F.C.

**Clevedon and Pukekawa cricketers, who met in an interclub match at Pukekawa. F. S. Atchison, Dominion Y.F.C. president and captain of the Clevedon team, is in cap and blazer.**

## Federation's Annual Meeting Next Month

THE twelfth annual general meeting of the New Zealand Federation of Young Farmers' Clubs (Inc.) will be held on Wednesday and Thursday, June 12 and 13, in Invercargill.

This meeting consists of the members of the Dominion executive committee and all other members of the four councils. Voting is restricted to them, but any member of the Y.F.C. organisation is entitled to attend and is welcome to take part in discussion.

As the accommodation position is very difficult at present, it has been necessary to make early hotel reservations in Invercargill. Council members and others attending have already notified the secretaries of their councils or the Dominion organising secretary, and arrangements have been made for them. Any member desiring to attend but who has not given notice in this way is requested to telegraph immediately to the district Y.F.C. secretary for Western Southland, Mr. W. L. Harbord, giving his address and stating his requirements. Telegrams should be addressed to: "Harbord, Agriculture Department, Invercargill." Rail and steamer reservations should be made as soon as possible. Steamer accommodation has already been arranged for the North Island members who have applied through their council secretaries, but they will have to make their own rail travel arrangements.

Officers of the federation for the ensuing year will be elected and the annual report and balance sheet presented at this meeting. Among other subjects of interest and importance to be discussed will be the details of the national Y.F.C. memorial scheme, based on the recommendations of the Dominion executive committee.

Arrangements for the entertainment of the visiting members have been made by the Western Southland Y.F.C. district committee. A good attendance of members is expected from all over the Dominion.

# Reports on Club Activities

### WESTERN SOUTHLAND

**Dipton.**—Address by Mr. F. T. McRae on "Small Seeds." Attendance of 7 members out of 11.

**Otautau.**—Discussion on dog trials, field days, and a sports meeting. Mr. Clouston, representing the Progressive League, gave a brief outline of proposals for summer shows in Otautau; the matter to be discussed at the next meeting. At a previous meeting Mr. W. Hessey, of the Southland Education Board, gave an address on "Soil Erosion," illustrated by film-strips. The district Y.F.C. secretary, Mr. W. L. Harbord, spoke on the district bay competition to be held at the Dunedin Winter Show. Fourteen members present out of 20.

**Seaward Downs.**—Practice debates to be arranged in preparation for interclub and interdistrict contests; challenge issued to Western Southland by the Mid-Canterbury district. Mr. K. Hargest, chairman of the Western Southland district committee, addressed the meeting on "The Aims and Objects of the Y.F.C. Movement," and the district secretary, Mr. W. L. Harbord, spoke on Lincoln College scholarships and the district bay competition at the Dunedin Winter Show. Attendance of 17 out of 33.

### SOUTH OTAGO

**Clutha Valley.**—Annual meeting. Officers elected: Advisory president, Mr. W. Caldwell; chairman, D. Stirling; secretary and treasurer, G. Small. Twelve members present.

**Milton.**—Annual meeting. Officers elected: Advisory president, Mr. A. B. Stewart; chairman, M. Adam; secretary and treasurer, R. D. Sheat. Mr. J. G. Richards, district secretary, was present, and discussed the district bays to be held at the Dunedin Winter Show. Attendance of 14.

**Warepa.**—Annual meeting. Officers elected: Advisory president, Mr. J. Dodds; chairman, D. Porter; vice-chairman, D. Milne; secretary and treasurer, M. F. Miller. Programme of activities for the ensuing year arranged as far as possible; prospective members to be advised of meetings. The district secretary, Mr. J. G. Richards (Department of Agriculture), spoke on the grass trials laid down on the property of Mrs. J. Shanks, and also discussed the Y.F.C. bays to be arranged by the various districts for the Dunedin Winter Show. Thirteen members present.

### DUNEDIN

**Dunback.**—Debate to have been held with Palmerston Y.F.C. postponed on account of seasonal work. Arrangements for a dance. Members who attended the recent field day held by the Palmerston Club gave interesting talks on the demonstrations, etc. Seven members present out of 10.

**Mosgiel D.H.S.**—Annual meeting. Officers elected: Advisory members, Messrs. V. Wood, A. Murray, W. Young, J. Cumberbeach, and W. Kaye; chairman, R. A. McClenaghan; vice-chairman, C. R. Munro; secretary and treasurer, P. Jackson. Discussion on the district Y.F.C. bays at Dunedin Winter Show, and a proposed visit to Lincoln College. Attendance of 60 out of 67.

### MID-CANTERBURY

**Ashburton Technical High School.**—Discussion on visit to woollen mills. Talk by T. Thomas on "Winter Feeding of Mangolds to Stock." At a previous meeting Mr. Werry gave an address on "The Y.F.C. Movement." Attendances of 18 and 13 respectively out of 21.

**Methven.**—Annual meeting. Officers elected: Advisory president, Mr. R. J. Low; chairman, W. Hart; vice-chairman, W. Symes; secretary, C. J. Wilson; treasurer, M. Poff; club reporter, D. Mackay. Attendance of 30 members out of 80. At a previous meeting final arrangements were made for the stock valuation day to be held at the Methven ewe fair. After the meeting games of table-tennis were played. Twenty-five members attended.

### NORTH CANTERBURY

**Hawarden-Waikari.**—Annual meeting. Officers elected: Advisory president, Mr. J. W. Earl; chairman, P. Earl; secretary, D. A. Black; treasurer, M. Le Gall. Twenty members present.

**Scargill-Omihi.**—Annual meeting. Officers elected: Advisory president, Mr. W. H. Brown; chairman, H. Symonds; secretary and treasurer, G. G. Gardner. Eighteen members present.

### NELSON

**Moutere.**—Delegates appointed to attend the district committee meeting at Nelson. Arrangements for annual meeting. Address by Mr. G. Ryder, recently returned from overseas, on "Life in Italy." Attendance of 10 members.

### HOROWHENUA

**Otaki-Te Horo.**—Annual meeting. Election of officers will be reported later. Address by Mr. Long, veterinarian, Levin Dairy Co., on "Experiences in Australia." Full attendance of 20 members.

### MANAWATU

**Apiti.**—Annual meeting. Officers elected: Advisory president, Mr. H. C. McIntyre; chairman, R. Nicholson; secretary and treasurer, S. K. G. Watkins. Arrangements for a club debate at the next meeting. Attendance of 18 out of 27.

**Bunnythorpe.**—Annual meeting. Officers elected: Advisory president, Mr. J. Linklater; chairman, T. G. Hyde; vice-chairman, C. S. Anderson; secretary, I. Rowan; treasurer, J. W. O'Donnell. A further radio talk to be prepared in the near future, and another field day to be held at Massey College. Attendance of 16 active and two advisory members.

**Colyton.**—Discussion on ways and means of raising funds. Radio talks discussed and programme of activities drawn up. Address by Mr. L. J. Wild, of Feilding Agricultural High School, on "Progress Through the Years." Mr. Wild is the Grand Patron of the Y.F.C. Federation. Attendance of 21 out of 27. A party of 18 members visited the Feilding Freezing Works where an instructive field day was held.

**Halcombe.**—Discussion on the club's progress generally; plans for future development. Radio talk to be prepared. Delegates appointed to attend the district annual meeting. Address by Major D. N. Ferguson on "The N.Z.E.F. in the Pacific." Attendance of 14 out of 18.

**Kairanga.**—Annual meeting. Officers elected: Advisory president, Mr. N. P. Neilson; chairman, N. J. Wilson; secretary, B. W. Devine; treasurer, B. Wilson. Twenty members present.

**Oroua Downs.**—Annual meeting. Officers elected: Advisory president, Mr. L. Funnell; chairman, R. Craig; vice-chairman, F. Moffat; secretary, K. F. Sim; advisory member, Mr. R. Shailer. D. Mills and G. Thompson were appointed librarians. Committee to investigate the rifle club. Arrangements for a ball and for a field day. Full attendance of 19 members.

**Rangiwahia.** — Annual meeting. Officers elected: Advisory president, Mr. G. Billinghurst; chairman, I. McKeane; secretary and treasurer, W. H. Simpson. Attendance of 19 members. At a previous meeting 17 members, of the total of 25, discussed arrangements for a field day and dog trial, and also the holding of a dance. Sixteen members and two members of a neighbouring club held a field day at the Longburn Freezing Works.

**Rongotea.**—Annual meeting. Officers elected: Advisory president, Mr. R. O. Gloyn; chairman, S. M. Rowe; secretary, M. Cocker; treasurer, C. A. Hall. Decided to have impromptu speeches from members at next meeting. Thirty members present out of 50.

**Te Arakura.**—Annual meeting. Officers elected: Advisory president, Mr. A. E. Wilkins; chairman, K. D. Galloway; secretary, N. E. Hansen. Attendance of 17.

**Waituna West.**—Annual meeting. Officers elected: Advisory president, Mr. N. V. Shannon; chairman, J. Small; secretary, B. Clare; treasurer, B. Younger. Discussion on radio talks and sports meeting. Twenty-three present out of 29.

**Whakarongo.** — Annual meeting. Officers elected: Advisory president, Mr. J. McCool; chairman, D. Robertson; vice-chairman, D. Clark; secretary, D. Lynch; treasurer, J. Spall; club reporter, L. Ranford; advisory members, Messrs. E. Johanson, S. Oxenham, M. Philip, and M. Archer. Attendance of 18 members out of 29.

### WAIRARAPA

**Carterton.**—Discussion on proposed tour of South Island lakes district, about eight members interested in going. Recommendations made to district committee regarding the W. James Memorial Cup. Arrangements for a field day. "Brains Trust" conducted by Messrs. B. Brasell, A. Fisher, and M. Knutson. The district secretary, Mr. W. V. Hadfield (Department of Agriculture) gave a talk on "Supplementary Crops." Thirteen members present. Total membership not reported. Twenty members attended a field day held at the P. and A. Showgrounds, Carterton; stock-judging competitions on calves and yearlings were held, a demonstration on "Dairy Type" was given by Mr. O. A. Cadwallader, and Messrs. Ordish Bros. demonstrated on a pick-up hay-press. A weight-guessing competition was also a feature, the dressed weight of two wethers having to be estimated.

**Masterton.**—Annual meeting. Officers elected: Advisory president, Mr. D. McLachlan; chairman, A. James; secretary, R. D. Wilton; treasurer, G. Evans. Recommendation to district committee that besides debating some other form of interclub competitions be arranged—sports events suggested. Proposed tour of South Island lakes district discussed—14 members desiring to take part. Roll of honour board to be completed. Mr. Norman Blatchford elected an honorary life member of the club for his wholehearted support and enthusiasm since the inception of the club 12 years ago. Ball to be held to raise funds for the National Y.F.C. Memorial. Fifty-three members present. At a previous meeting an address was given by Mr. E. G. Norman on "South Africa"; the speaker dealt with the country as he saw it while working for the British meat export trade. Attendance of 31 members out of 83.

**Tinui.**—Discussion regarding the Y.F.C. Educational Week to be held at Palmerston North, the proposed tour of South Island lakes district, and the coming district field day. A circular from the Y.F.C. Federation dealing with fodder supplies for the relief of drought-stricken areas was also discussed. Stewards for the club field day at Awatoitoi were appointed. Address on "Fat Lamb Breeding" by Mr. R. M. Perry. Thirty-three members present out of 36. There was an attendance of 24 at a field day held on Mr. H. G. Groves's property, "Marangai"; demonstrations were given on the making of concrete drain-pipes, and on the growth of eucalyptus and macrocarpa trees. At a previous meeting Mr. A. I. Speedy addressed members on "Sheep Farming," dealing mainly with the purchase price and the costs of running farms of various sizes and different carrying capacities. Twenty-four members present.

## WANGANUI

**Marton.**—Discussion on the recent successful gymkhana, and the arrangements for the future of this activity. Sum of £2 2s. to be forwarded to the St. John Ambulance Society for services rendered at the gymkhana. Report by the secretary on a recent visit by club members to the wool stores at Wanganui. Circular regarding the Educational Week at Palmerston North discussed. Report on last meeting of district committee. An address was given by Mr. Don Johnson, consulting officer, N.Z. Dairy Board, Palmerston North, on "Artificial Insemination and Allied Subjects"; the speaker gave a demonstration of the instruments used, and dealt with many of the problems to be overcome. Fifteen members present out of 44.

## SOUTH TARANAKI

**Pihama.**—Arrangements for field day at the Eltham rennet factory. Talk to be given at next meeting on "Building." Indoor sports to be arranged. A club debate was held, the subject being "That Country Life is Better than Town Life." The advisory president, Mr. R. Cathie, presided. Attendance of 16 members out of 20.

**Pukengahu.**—Discussion on ways and means of raising funds for the National Y.F.C. Memorial; decided to hold dances in the Stratford Town Hall as part of the effort. Smoke concert to be held for Y.F.C. members returned from overseas; presentation to be made to each ex-serviceman during the evening. Sixteen members present out of 30.

## NORTH TARANAKI

**Inglewood.**—Five new members enrolled. Lengthy discussion on "Land Settlement, and Ways and Means of Reducing the Expenses of the Back-country Farmer." Members giving good support to the Tomoana porker and baconer competition. Seventeen members present out of 21.

**Karawaka.**—Field day at the Waitara Freezing Works; members were conducted around the works, the foreman of each department explaining the work in turn. Attendance of 23, including 5 members of neighbouring clubs.

**Tikorangi.**—Auditor appointed. Arrangements for a return cricket match with Taurangi. Date of annual meeting decided. The advisory president, Mr. V. Sarten, gave a report on the recent field day held at Lepperton. Eight members present out of 11. At the previous meeting a club debate was held, the subject being "Which is the Better to Feed to Stock in Winter—Silage or Greenfeed, Roots, etc.?" Mr. P. G. Sarten acted as judge, and gave the decision to the team favouring silage.

**Toko.**—Annual meeting. Officers elected: Advisory president, Mr. L. Marfell; chairman, Hec. Milne; secretary, A. S. Rowe; treasurer, C. Walter. Nineteen members present.

**Upper Mangorei.**—New secretary appointed. Discussion on report of district committee meeting. General talk and discussion by all members present on matters of local interest. Nine members present.

## SOUTHERN HAWKE'S BAY

**Mangamutu.**—Newly-formed club. Officers elected: Advisory president, Mr. T. Selby; chairman, J. Morris; secretary, J. Mangin; treasurer, C. Sowry; club patron, Mr. T. J. Cotter.

**Dannevirke.**—Invitation for members to attend the Dannevirke Jersey Breeders' field day to be held on Mr. T. Johnson's property at Raumati. Three new members enrolled. Discussion on Educational Week to be held at Palmerston North. Demonstration by Mr. S. K. Carswell on "How to Conduct a Postmortem on a Sheep." Mr. Carswell explained the workings of the reproductive system and pointed out the various organs of the body; he also showed members the liquid in a hydatid cyst under the microscope. Attendance of 23 out of 91. At the annual meeting, held previously, the following officers were elected: Advisory president, Mr. L. Feirabend; chairman, K. Reisma; secretary, K. Tait; treasurer, S. K. Carswell; auditor, Mr. L. F. Allen; advisory members, Messrs. W. Simmons and D. M. MacDonald; club patron, Mr. H. S. M. Quigley. During a discussion on the programme for the coming year J. Hartridge (retiring chairman) urged that the club hold more outdoor activities, and suggested demonstrations on ploughing, running repairs to tractors and general farm machinery, shearing, and crutching.

## CENTRAL HAWKE'S BAY

**Otane.**—Annual meeting. Officers elected: Advisory president, Mr. J. Cooper; chairman, J. L. Sunderland; vice-chairman, N. Lange; secretary and treasurer, E. T. Williams; advisory members, Messrs. F. Smith, W. Tod, A. Williams, and G. Warren. A tentative programme of lecturers for the year was compiled. Discussion on the recent Wellington Council meeting; report given by the chairman, J. L. Sunderland, who was chairman of the Wellington Council. Attendance of nine members out of 13.

**Takapau.**—Annual meeting. Officers elected: Advisory president, Mr. N. Waldin; chairman, N. Tilley; secretary, E. McMillan; treasurer, H. Waldin. The Dominion Organising Secretary (Mr. S. Freeman) and the secretary of the Wellington Council (Mr. A. V. Lithgow) were present and exhibited some interesting sound films. Twenty-one members attended.

**Waipukurau.**—Annual meeting. Officers elected: Advisory president, Mr. J. W. Harding; chairman, P. Mills; vice-chairman, I. McLennan; secretary, B. Elliott; treasurer, H. McWilliam; advisory members, Messrs. D. J. Coughlan and E. S. Elliott. At a previous meeting Mr. A. D. G. M. Laing, Government veterinarian, Hastings, gave an address on "First Aid to Farm Animals." Attendance of 18 out of 21.

## NORTHERN HAWKE'S BAY

**Nuhaka.**—This club has resumed activities after having been in recess for five years. Officers elected: Advisory president, Mr. N. Alexander; chairman, T. Glenny; secretary and treasurer, P. Steele. Mr. G. D. Tod gave a lecture on "The Points to Look for When Judging a Ram," and followed this by a demonstration. Members of the club will attend a field day, in conjunction with the Wairoa Club, on Mr. Humphrey Bayley's property. Membership to date, 14.

**Wairoa.**—Arrangements for field day on Mr. Humphrey Bayley's property; members of the newly-revived Nuhaka Club to attend. The meeting was addressed by the Dominion Organising Secretary, Mr. S. Freeman, who gave members an insight into the aims and objectives and future prospects of the Y.F.C. movement; he suggested that the time had come for a club with such a large membership

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(over 80) to consider dividing into two or more clubs in order to cover the district more thoroughly and extensively. He detailed the progress being made throughout the Dominion, and painted a bright picture of the future; he stressed, however, that in order to get the best out of it members must be prepared to work for their organisation. There were 22 members present.

## TAUMARUNUI

**Ohura.**—Annual meeting. Officers elected: Advisory president, Mr. W. A. Tocker; chairman, N. J. Dougherty; secretary, K. P. Hindmarsh; treasurer, D. Fiel. The district secretary, Mr. E. G. Stainton, gave an outline of the district field day to be held near Taumarunui, and also gave details of the competition for Y.F.C. courts at the Taumarunui Winter Show. Attendance of 10 members out of 22.

## TE KUITI

**Otorohanga.**—Business meeting; report by delegates who attended the recent Auckland Council meeting. Arrangements for annual meeting. Eleven members present out of 30.

## WAIKATO

**Cambridge.**—Annual meeting. Officers elected: Advisory president, Mr. G. A. Walsh; chairman, R. Lang; secretary, T. Moore; treasurer, M. Russell. Eighteen members present.

**Elstow.**—Annual meeting. Officers elected: Advisory president, Mr. L. A. Strange; chairman, L. Hayes; secretary, R. G. Wagstaff; treasurer, C. M. Wagstaff. Twenty members present out of 28.

**Hamilton Technical High School.**—Over 40 new members enrolled. Address by Mr. B. Blackmore on "The Reasons Why We Have Young Farmers' Clubs"; the speaker described for the new members the correct manner in which meetings should be run. Attendance of 68 out of 76.

**Hinuera.**—Business meeting. Arrangements for annual meeting. A programme of suitable subjects for lectures and field days was compiled. Sixteen members present out of 29.

**Kakepuku.**—This club has recently resumed activities after having been in recess during the war period. Officers elected: Advisory president, Mr. H. R. Clarke; chairman, W. G. Neill; secretary, T. W. Ray; treasurer, D. McClennan.

**Ngahinepouri.**—Newly-formed club. Officers elected: Advisory president, Mr. A. Neilson; chairman, B. McWhannell; secretary, G. H. Chapman; treasurer, H. MacDonald. Initial membership of 16. At the first meeting after its formation the club was addressed by Mr. MacDonald on "How to Conduct a Public Meeting." Fourteen members present.

**Ngarua.**—Annual meeting. Officers elected: Advisory president, Mr. J. Thomlinson; chairman, R. J. Scott; secretary, C. P. Carter; treasurer, R. Presland. Attendance of 38 out of 48.

**Okoroire.**—Annual meeting. Officers elected: Advisory president, Mr. W. B. Hardwick; chairman, A. Corbett; secretary, J. Allen; treasurer, F. Verry. Six new members enrolled. Discussion held on debating rules, a radio talk, and an efficiency competition. Mr. Hardwick made suggestions for a future field day, and also for the revival of the Putaruru Club. Attendance of 26 out of 49.

**Te Awamutu.**—Annual meeting. Officers elected: Advisory president, Mr. W. H. Benson; chairman, A. E. Smart; secretary, G. Mandeno; treasurer, K. Allcock. Sixteen members present.

**Te Kowhai.**—This club has recently resumed activities after a long recess. Officers elected: Advisory president, Mr. S. A. Cox; chairman, J. Wallace; secretary, S. R. Thomas; treasurer, G. Oliver. Twelve members present at initial meeting. The district secretary, Mr. J. R. Murray, was present, with Mr. W. G. Whittleston, of the Animal Research Division, Department of Agriculture. Mr. Whittleston gave a lantern lecture on "The Theory and Practice of Milking Machines"; this was followed by questions and discussion.

**Waerenga.**—Annual meeting. Officers elected: Advisory president, Mr. W. J. Jefferies; chairman, F. Nelson; secretary, W. L. Holt; treasurer, A. Carter. Mr. W. J. Jefferies gave an address on "Stud Sheep," making many valuable suggestions. Attendance of 32 members out of 50.

## THAMES

**Kerepeehi.**—Newly-formed club. Officers elected: Advisory president, Mr. R. C. Trembath; chairman, B. Burton; secretary, A. Murray; treasurer, J. Masters. Initial membership of 11.

**Netherton.**—Newly-formed club. Officers elected: Advisory president, Mr. C. Townsend; chairman, R. Locke; secretary, H. Wilson; treasurer, G. Townsend. Initial membership of 16.

**Ngatea.**—Three new members enrolled. Motion carried that every member endeavour to bring along a new member to the next meeting. Social committee of seven members appointed. Arrangements for club's first field day. Address on "The Judging of Dairy Cows" was given by Mr. Schultz, of Ngatea; this was followed by free discussion. Eighteen members present. The field day was held on Mr. A. McLean's pampas farm at Waitakaruru. Mr. McLean dealt with the "power of recovery" of pampas after grazing, and referred to its value in a dry spell such as has been experienced this summer, and to its use as a winter fodder for dairy cows. Fifteen members and two prospective members attended the field day. At the next meeting three more new members were enrolled. Arrangements are in hand for another field day. The Tomoana porker and baconer competition was discussed; one member, M. Morran, is entering a team of four porkers. As a result of the field day on Mr. McLean's property a lively discussion took place at the meeting on the respective merits of pampas and hay, S. Jellavitch supporting the former and G. Spence favouring the latter. Two members who were unable to attend the field day acted as judges and brought in the non-committal verdict that pampas is suitable to free-draining soils. There were 18 and 19 members present at the two meetings respectively; the total membership has now reached 25.

## ROTORUA

**Putaruru.**—This club has recently resumed activities after a long period of recess. Officers elected: Advisory president, Mr. C. A. Deihl; chairman, W. McHardy; secretary and treasurer, J. T. Graham. Eleven members present at initial meeting.

## WESTERN BAY OF PLENTY

**Kati Kati.**—Annual meeting. Officers elected: Advisory president, Mr. G. B. Walford; chairman, N. Batkin; secretary, I. M. Boyes; treasurer, R. J. Macmillan. Sixteen members present.

**Paengaroa.**—One new member enrolled. Arrangements for an athletic meeting. A junior and a senior team were selected to represent the club in the district debating contest. Report by N. Marsh on progress made by the committee set up to deal with the shooting competition. Report by the chairman on the Dominion executive committee meeting held at Wellington. Arrangements for annual meeting. Address by Mr. Gordon Spratt on "The Y.F.C. Constitution." Thirty-two members and three visitors present.

**Waihi.**—Annual meeting. Officers elected: Advisory president, Mr. D. Sanson; chairman, J. Sexton; secretary, L. T. Gordon; treasurer, R. G. Gordon. Arrangements for a field day. Committee appointed to organise debating. Twenty members present.

**Welcome Bay.**—Annual meeting. Officers elected: Advisory president, Mr. J. C. Hammond; chairman, J. R. Wright; secretary, G. A. Cooper; treasurer, L. Aitken. Provisional committee set up to launch a campaign to raise funds. Attendance of 21 out of 35. At a previous meeting senior and junior debating teams were selected; arrangements made for a picnic, with athletic events; exhibition of interesting films by Mr. S. A. Woods. Twenty-two members present.

## EASTERN BAY OF PLENTY

**Edgecumbe.**—This club has recently resumed activities after a lengthy period in recess. At the meeting held to revive the club addresses were given by Messrs. D. S. Ross (past president of the Y.F.C. Federation), Ian Spratt (vice-chairman, Western Bay of Plenty district committee), Gordon Spratt (Paengaroa Y.F.C.), Ian Gow (chairman of the meeting), E. R. Marryatt (district Y.F.C. secretary), and others. A motion was carried to the effect that the Edgecumbe Club be revived forthwith, and that the Eastern Bay of Plenty district committee give consideration to the forming of clubs at Otakiri and Awakeri. The election of officers was held over till the next meeting. There was a good attendance, 35 being present.

**Opotiki.**—Annual meeting. Officers elected: Advisory president, Mr. D. Bennett; chairman, I. Grant; secretary, S. J. Cooper; treasurer, S. Fisher. Twenty-three members present.

**Taneatua.**—Impromptu debate, the subject being "Non-stripping v. Stripping." Five members on each side, and teams tied for points. Ten members present out of 12.

**Thornton.**—Annual meeting. Officers elected: Advisory president, Mr. A. Hutton Adams; chairman, Malcolm E. Law; secretary, James M. Law; treasurer, L. J. Adams. The meeting was addressed by the district chairman and the district secretary. Attendance of 27 members. Two members, J. Laing and S. Goodrick, have volunteered for the N.Z. Occupation Force in Japan.

**Whakatane District High School.**—Annual meeting. Officers elected: Advisory president, Mr. Gordon; chairman, P. Lyons; secretary and treasurer, I. A. Law. The meeting was addressed by the district chairman and the district secretary. Attendance of 27 members.

**Waimana.**—Annual meeting. Officers elected: Advisory president, Mr. C. R. White; chairman, David White; secretary, V. D. Fleming; treasurer, J. Cranswick. Attendance of 19 members.

## AUCKLAND

**Clevedon.**—Annual meeting. Officers elected: Advisory president, Mr. A. D. Bell; chairman, A. Blundell; secretary, B. Ryburn; treasurer, D. Alexander. Report on dance—profit of £14. Cricket team picked for return match with Pukekawa. R. Smith, who acted as a junior judge in the Friesian section, reported on the recent Franklin Show. Arrangements for a field day at Reid Rubber Mills and Dominion Brewery. Two-minute talks by members on subjects of their own selection. Twenty-one members present out of 43.

**East Tamaki.**—Annual meeting. Officers elected: Advisory president, Mr. J. Valder; chairman, L. W. Gubb; secretary, G. W. Guy; treasurer, W. B. Litten. Six new members enrolled. The chairman reported on progress regarding the proposed day trip to Te Aroha. Attendance of 30 members out of 43.

**Franklin.**—Annual meeting. Officers elected: Advisory president, Mr. R. Franke; chairman, F. Gashell; secretary, D. W. Iles; treasurer, S. Adeane. Twenty-nine members present.

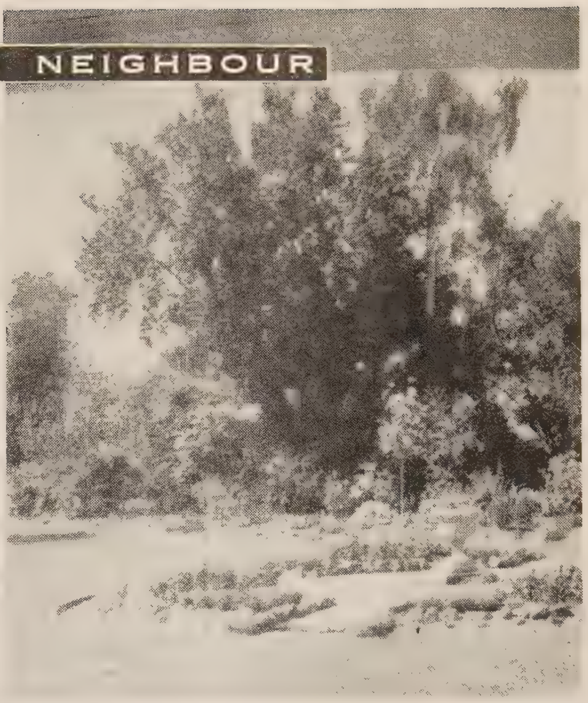
**Harrisville.**—Debate to be held at next meeting, the subject to be "That the Present-day Farmer Spends too Much of his Time away from Home." Address by Mr. L. Batkin, of Tuakau on "Poultry." Nine members present out of 23. At the previous meeting a debate was held on the subject of "Tractors v. Horses."

**Pukekawa.**—Annual meeting. Officers elected: Advisory president, Mr. J. L. Cathcart; chairman, H. Cathcart; secretary, Roy F. Parker; treasurer, S. Logan. Decided to appoint a junior vice-chairman to preside over meetings twice yearly, to train and encourage younger members; K. McNeill was elected. Picnic sports day arranged for Easter Saturday. Further cricket matches to be played. Prepared speeches, on any agricultural topic, to be given at next meeting; five minutes allowed each speaker; trophies for (a) best speaker, (b) most progressive speaker. Twenty members present at meeting.

## WARKWORTH

**Matakana.**—Newly-formed club. Officers elected: Advisory president, Mr. H. Linton; chairman, J. Bassett; secretary, L. T. Clayden; treasurer, B. de Luen. Fifteen present at the initial meeting.

## THE GOOD NEIGHBOUR



# Pot Pourri

*And the jessamine, and the sweet tuberose,*
*The sweetest flower for scent that blows.*
*—Shelley.*

*DURING the past few months I have been collecting recipes. No, not the kind that tells me how to whip up a super sponge or delectable savouries, or what to do with the remnants of Sunday's joint, but something much more satisfying as far as my aesthetic sense is concerned. Perhaps it was because flowers figured so largely among my Yuletide gifts that I experienced the sudden urge to acquire the housewifely art of making pot pourri. My home has never looked gayer than it did at Christmas. Every rose-bowl bore its scented freight, and all the tall-stemmed vases were filled with carnations—pink, smoky lavender, cerise, and candy-striped red and white like the peppermint sticks we used to buy as children. Rosy spiraea mingled with rainbow-hued sweet peas, which matched the paper bells and streamers overhead. The windows had garlands of green holly, scarlet spears of gladioli atoning for the lack of traditional red berries. Poppies and potted primula formed a colourful background for the little wax model of Santa Claus, which was flanked on either side by a row of miniature fir trees. When the last visitor had departed I sat quiet for a long time. It was quite dark outside, and the stars twinkled as brightly as the tinsel ones trimming the Christmas tree. A comfortable drowsiness assailed me and made my eyelids close, yet still the delicate flower fragrances lingered in the air for my delight. It was then, I think, that the idea of preserving some of summer's sweetness to scent the dull days of winter first took shape. Hence my search for pot pourri recipes.*

*The directions, like the ingredients, vary considerably, but there is complete agreement on several points. Flower petals, like fruit, should be gathered only on a fine day. Poets and gardeners may wax lyrical over blooms with the early dew upon them, but not so the perpetuators of pot pourri. It is better not to pick too many flowers at one time, because the process of drying is inclined to be a lengthy one. I might mention that leaving the blossoms out in the sun to dry is strictly taboo. A wire cake cooler, with a length of butter muslin placed on top of it, forms an excellent drying tray, since the air can then circulate freely round the petals. Indeed, the flower-laden tray has become a familiar feature of my dining-room, as it is the warmest room in the house and therefore most suited to the task of freeing the petals from moisture. Whenever I gather a further supply from the garden, I test the previous batch by placing a handful in an airtight tin and leaving them there overnight with—of all things—a biscuit! Should the biscuit have lost its crispness next morning, then I know that the petals must be spread out again and dried a little longer before being added to the big collection in the screwtop jar.*

*Such fragrant loveliness has been garnered in that jar—rosemary from the bush a friend planted by my gate; clove-scented petals of my favourite carnations; sweet geranium leaves and sprigs of eau de Cologne plant; flame and gold and crimson glory from the rose-bed; small, shell-like whorls of stocks; lemon verbena and old-world lavender; fluted honeysuckle that I picked where it grows wild on the hillside. Later I will add orris powder, or perhaps some finely-ground cloves, cinnamon, or allspice. I might even experiment with minute slivers of dried lemon and orange peel, but at present I prefer the flower perfumes to predominate.*

*Nor will the container always be so mundane, although an airtight jar is the ideal receptacle in which to keep pot pourri, as it prevents the dried leaves and petals from absorbing any further dampness that may be in the atmosphere. But now the winter is approaching in earnest and the glow of a log-fire is welcome, I shall transfer a portion of my pot pourri to the pottery jar that graces the mantelshelf. I believe it originally started life as a honey-pot, but its cheerful pattern of peacock-blue scrollwork, and red and yellow chrysanthemums against a sunny border, so endeared it to me that I gave it the place of honour next to the clock where its clear colours complement those of the woodcut on the wall above. The remainder of my precious store can conveniently repose in a polished wooden bowl with a smooth round lid, which I picked up in a foreign market-place on my travels.*

*"Every scented bloom that blows!*
*Velvet petals from the rose;*
*Marjoram and mint and rue,*
*Lavender, with spikes of blue;*
*Lemon thyme, and rosemary—*
*These, together, make for me*
*Sweetness that will linger on*
*When the summer days have gone.*
*Memories from near and far*
*Fill for me a fragrant jar!*
*Friendly words, a kindly deed,*
*Sympathy in hours of need,*
*Smiles and songs, a happy day—*
*These I treasure, stored away.*
*Memory's jar of pot pourri*
*Sweetens all my hours for me."*

*Not only should we treasure all the pleasing happenings that we may enjoy their pleasantness anew when life becomes monotonous and our duties seem irksome to a degree, but we should also bear in mind that we have a responsibility to give what we can of happiness to those about us. The simple things—asking a lonely person home to tea; making time to plan the small surprises that children love; helping an overburdened neighbour with her household tasks; being generous with encouragement and understanding as well as personal possessions—these, too, are choice flowers from friendship's garden whose fragrance grows sweeter with sharing.*

Mary

parents eye view

Angel-child, sometimes . . . little monkey on occasions . . . but always deserving of the best . . . and the best in sleeping hygiene is, of course, Air Cell, the blankets that breathe. Air Cell blankets are twice as warm as ordinary blankets and weigh little more than half as much—just imagine that extra relaxing, refreshing sleep you get with Air Cell. They're showing now in an increasing range in the shops, in lovely pastel tones and with that gorgeous texture that makes them look as comforting as they really are.

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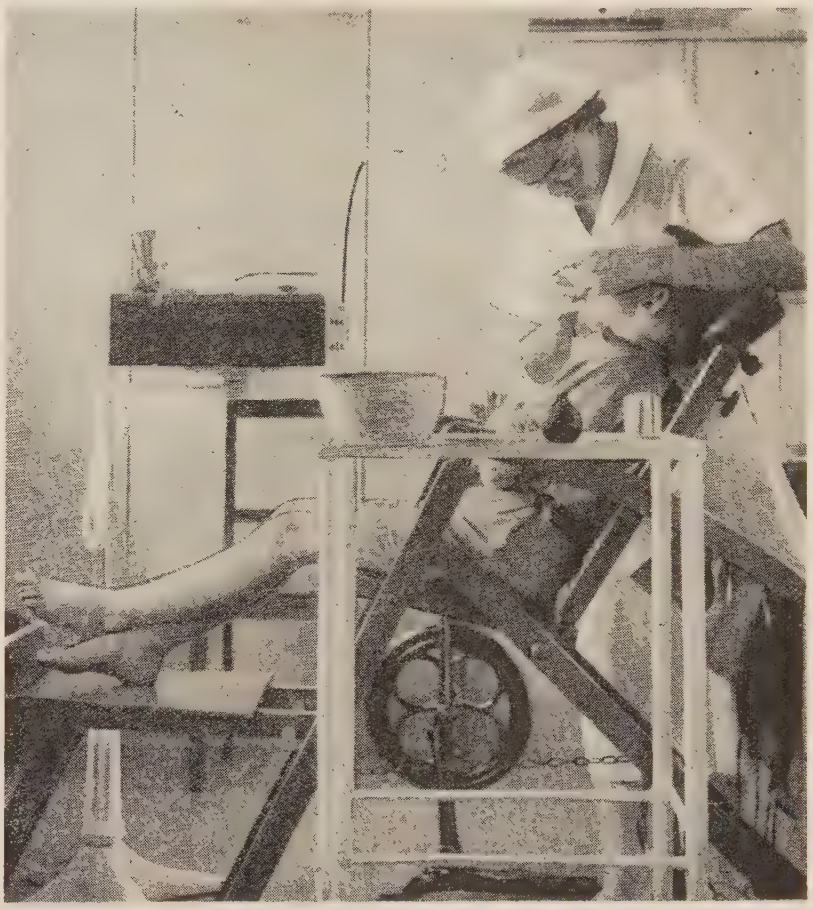
# Preserving Our Children's Teeth

*OVER the past few decades there has been a marked increase in the number of young people using artificial teeth, writes an officer of the Health Department. As a rule, this has been the result largely of ignorance, apathy, and lack of care of the natural teeth. To so great a degree has this tendency developed that our people are fast becoming a race of artificial-denture wearers. To many folk this condition means nothing. To them, removal of the natural teeth means the end of their dental worries. The baby teeth and the second teeth come—and they go—both sets!*



[Internal Affairs Dept. photo.

LET us examine ourselves and the position critically. In resigning ourselves to matter-of-course extractions are we being true to ourselves, to our children, and to the unborn? When one considers the problem to what conclusion must one come? Surely, that in the looking forward to an edentulous life (that is, life without our own teeth) as the natural order of things, we are abusing Nature.

Nature meant us to **retain** our second teeth just as surely as we were meant to **lose** our baby teeth. It must be obvious that we were given teeth with which to chew, to talk, to laugh, and to sing! Then there is the aesthetic aspect. What looks better than sound natural teeth and firm pink gums? There is a radiance and a charm about our natural teeth which no artifice of the dental laboratory can reproduce.

The faces of false teeth wearers seem to assume a standard pattern. After a few years of wear the face from the cheek bones to the lower jaw narrows, because the support which natural teeth give to the face is no longer there. Lines around the mouth and on the cheeks appear more quickly (a tragedy in young women). The gums shrink, often necessitating refitting of the set. A stage is finally reached when a loose sloppy denture is the outcome, especially in the lower jaw where there is little natural ridge. The act of mastication must also receive a setback for it is universally recognised that the chewing efficiency is greatly impaired when false teeth replace the natural set. It is mechanically impossible for a set of teeth which adheres to the surface of the gums to function as well as the natural teeth which were embedded in bone. This loss of efficiency must therefore increase the load on an already overburdened digestive system.

## *Duty of Parents*

What then can we do to better the lot of our children? Generally, the decision rests with the parents, and particularly the mothers. It matters not whether you wear false teeth yourself. Make sure that your child will have his or her natural teeth preserved in a good healthy state, and you are doing a duty for which this nation will sooner or later be very grateful. We see visitors coming to our shores with magnificent natural teeth. How we used to envy the teeth of the visiting Allied servicemen! Our own boys tell us that a noticeable feature of Italian prisoners of war was their good teeth. Surely our teeth should not be inferior to theirs? Even native races possess their own gleaming teeth and observe good oral hygiene.

The best possible dental health for our children should be our aim. It means something positive on our part. Many of us take too much for granted when considering the health of our children, particularly the dental aspect.

New Zealanders pride themselves on the quality of their farm stock, and to this end they go to great pains to ensure splendid healthy animals. Let us not forget that our children require constant care and attention also. Again we may ask what can we do? In the light of our present knowledge, and we are indeed very conscious of the progress there is yet to be made, the answers are these:

1. Expectant mothers should ensure that their diet comprises food rich in tooth-building constituents, i.e., calcium, phosphorus, iron, and vitamins. These are found in milk, meat, fish, liver, cheese, wholegrain cereals, wholemeal bread, butter, eggs, cod liver oil, plenty of vegetables, plenty of water, milk and fruit drinks, and iodised salt.
2. Preserve the baby teeth till they are lost naturally, and ensure that the child has a well-balanced diet including foods rich in calcium, phosphorus, and vitamin D.
3. Preserve the second teeth by: First, observing strict oral hygiene in the home, i.e., cleaning the teeth after meals, particularly after breakfast and before bed. Second, visiting the dentist or the school dental clinic frequently to enable carious teeth to be filled. Third, incorporate more of the harder fibrous foods in the diet so that ample exercise is given to the jaws. This promotes bone growth and so makes plenty of room for the teeth to come in straight. Fourth, end the meal with a tooth-cleansing food such as lettuce, carrot, celery, etc., or fruit such as apple, orange, pear, etc.
4. Foster the idea in the minds of your children, and especially those in their teens, that sound natural teeth are the best, and that they should be cared for. They are an asset, not a liability.

[*Internal Affairs Dept. photos.*

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## *THE TUI*

WHO does not love the tui? It is my favourite of all the native birds, and I am compelled to stop and listen when this lovely songster of the bush fills the air with its enchanting melodies. Its song seems to come from a heart that is full of joy and gratitude to God for His goodness in providing all that our beautiful feathered friend requires—a natural bush home, the open sky above, the warmth of the sun, honey from the native flowers, and insects and berries to eat, a tongue with a very fine brush at the tip to assist it in obtaining food.

No other bird seems to have so much energy as the tui, for it is usually the first to be heard in the morning and the last at night, and it is swift in flight and full of activity. It is said to be a great mimic and can even be taught to talk a little. In appearance it has a gracefully-shaped head, dark, glossy plumage, and a tuft of white feathers at its throat, its clerical attire earning for it the name of Parson Bird.—**"Tui," Hawke's Bay.**

[*Photo News.*

# How to Grow Geraniums

**A VISITOR from overseas who travelled extensively in the North Island last summer remarked, "How dull many gardens were during January and February. In many of the gardens I saw there was nothing in flower except geraniums, and in three out of four gardens there weren't even any geraniums!" It is not fair, perhaps, to judge New Zealand gardens by this year's display, because of the drought. There is, however, a lesson to be learned from these remarks, and many home gardeners might well take it to heart. This article by J. P. Hudson, Horticulturist, Wellington, explains how geraniums may be grown successfully.**

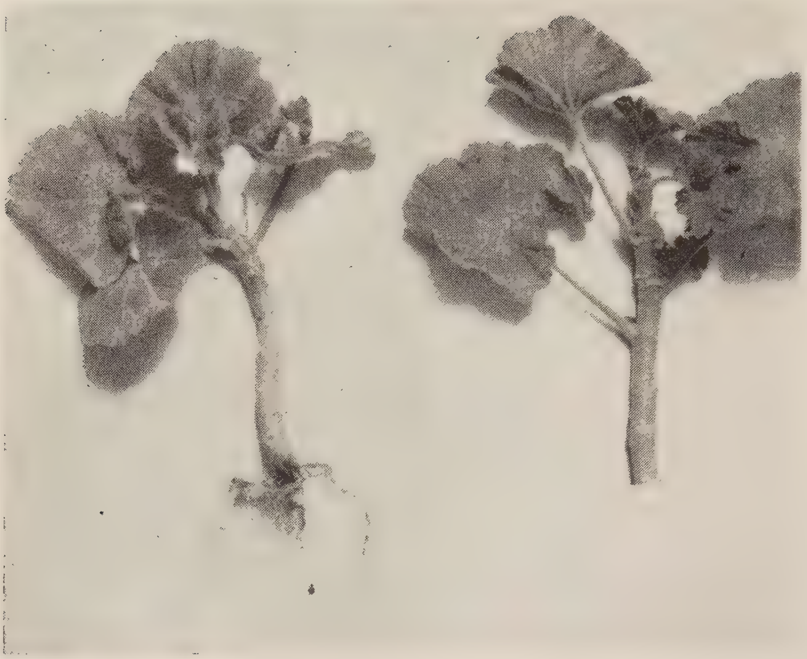
THE geranium is the finest garden "insurance" against a long, dry spell, as it can always be relied on to give a good display of flowers even in a drought. Every gardener who has no geraniums in the flower border should make sure that a few are planted next year. If you already have some, but not enough, try increasing your stock by means of cuttings. Also, try planting some new types and varieties—they will all pay a dividend if we get a dry season.

## *Types and Varieties*

The bedding (or zonal) geraniums are undoubtedly the best type for general garden use, as they flower freely for a long period each year. Among the most showy varieties are Paul Crampel (single scarlet—probably the finest variety of all), Maxime Kovalesky (double salmon pink), and King of Denmark (double salmon), but nurserymen offer many other good varieties.

Another free-flowering type, which is especially useful for trailing over walls or banks, is the ivy-leaved geranium. Several varieties can be recommended, such as Souvenir de Chas. Turner (double orange-red), Pink Pearl (soft pink), Le Printemps (deep salmon rose), and Madame Crousse (silvery pink).

It is interesting to note that bedding and ivy-leaved geraniums should not really be called geraniums at all, as they belong to the pelargonium and not to the geranium family. However, as they are commonly known as geraniums, the name is used here for the sake of convenience.



The bottom three leaves have been cut off the cutting on the right and the stem then cut off cleanly just below where the bottom leaf joined the stem. The plant on the left is a well-rooted cutting ready to be moved into its flowering quarters.

The regal or show pelargonium is another member of this family too often neglected in New Zealand gardens. While not, perhaps, so showy nor so free-flowering as the bedding or ivy-leaved geraniums, it is, nevertheless, a good garden subject with a fairly long flowering period, and is resistant to drought conditions. The lighter-coloured varieties make the best show in the garden, and are recommended in preference to those with dark magenta or purple flowers. A number of varieties are offered by nurserymen, and include Annie Helmsley (golden cerise), Distinction (lavender), Dominion (a very free-flowering pink), Rose Queen (pink), and Edwin Perkins (scarlet—probably the best for garden purposes).

The scented-leaved pelargoniums, although not showy, deserve a place in the garden, preferably near the path where one can touch the foliage and so get their fragrance on the fingers. Many types grown at present have an unattractive smell, and this probably explains why the plant has lost popularity. In the last century nurserymen listed lemon-scented, orange-scented, and apple-scented varieties, together with others smelling of pine, mint, violet, ginger, and musk. A favourite was the rose-scented geranium, from which an imitation attar-of-roses oil was obtained. It is doubtful whether many, if any, of these scented types are obtainable now from nurserymen in New Zealand, although a number of them were shown in New York by the Garden Club of America as recently as 1936, and are probably still in existence.

## Plant in Sunny Position

Geraniums require sunshine more than anything else. Given a sunny position, they are remarkably tolerant of poor soil and an indifferent water supply. They will not endure "wet feet" and do not appreciate shade.

Those enterprising gardeners who are not on a stock route, and who plant a row of geraniums outside their front boundary fence, are rewarded by a bright frontage throughout the summer months. They are also helping to make their road or street more beautiful.

When geraniums are put out, they should be planted really firmly, and the soil around the plants tightened by the foot. Maxime Kovalesky usually loses its leaves when moved, but soon produces new ones.

In many parts of New Zealand geraniums thrive out of doors all the year round, but they will not stand more than a touch of frost. Where cold, frosty weather is to be expected the plants should be protected throughout the winter time. If they can be lifted and potted into a light sandy mixture, they will make a sunny window bright through the cold months. In England few cottage windows are without a geranium plant of some sort.

Plants can be almost dried off if preferred. For this purpose they should be lifted late in the autumn and put in boxes with soil loosely packed between the plants. The soil should be kept barely moist, although it should not be allowed to dry out altogether for prolonged periods. The boxes should be kept in a light, airy, but frost-free place through the winter until the plants can be brought out again and replanted in the garden in the spring. When replanting it is a good plan to cut them back hard to encourage them to form shapely bushes.

## Increasing the Stock

All types of geraniums can be propagated easily from cuttings. These will root at almost any time of the year, but are best taken in summer and autumn. Pieces of sturdy new growth, three to four inches long, should be severed from the parent plant just above a leaf. They should then be prepared by cutting off the bottom two or three leaves, and then cutting the stem back to just below where the bottom leaf joined the stem. A razor blade is ideal for cutting leaves and stem, as it makes a clean cut which heals rapidly.

The cuttings should be put three inches apart, and bedded fairly firmly into sandy, light soil in a frame. If a frame is not available, a wooden box, with top and bottom knocked off, may be pressed into the ground, and, with a sheet of glass over the top, will serve the purpose. However, in most parts of New Zealand these cuttings can even be rooted out of doors during the summer months. The soil should not be firmed too tightly around the stems, as bruised cuttings often rot and die. It is important that the hole for the cutting should be made with a flat-ended dibbler to the required depth only. The end of the cutting should sit on the soil at the bottom of the hole, and should not be suspended in a small pocket of air. The soil in which the cuttings are put should never be allowed to dry out; but the cuttings should not be watered unnecessarily, as too much damp may cause them to rot. When the cuttings are seen to be making new leaves they are sufficiently rooted to be moved to their flowering quarters.

◆

## TWILIGHT

*Still is the garden, silent as sleep,*
*Where no feet pass;*
*Tired, the roses bow their heads,*
*Strewing the grass*
*With fluttering petals, scented and hot*
*Like passionate tears;*
*And the apple trees sigh, as the moon rides by,*
*With the weight of the years.*

Winter Woollies

*By* **EVA TOPPING,** *Rural Sociologist, Auckland.*

**WOOL is precious, so we should get every scrap of extra wear we can from our woollen garments and make good use of every inch of "left-overs." Here is a collection of ways to make more use of the wool and woollen garments you already have.**

## What to do with Oddments

In many homes there are accumulations of short lengths of wool left over after knitting garments. There are many ways of using these oddments, and now that the colder weather is coming perhaps you will be gathering all your ends of wool together and sorting them to find out their possibilities. It is a good plan to weigh the odd balls which you think will combine well, so that you know exactly how much is available. Always allow extra weight when there are many small balls, as a little wool will be lost each time it is joined. Small quantities can be used for gloves, caps, hoods, scarves, socks, striped jumpers, and cardigans, or for combining with cloth in frock renovations. A list of the approximate amounts needed for some garments, or parts of garments, may help you to decide what you can make:—

Back or front of cardigan or jumper: 1¾oz. of 3-ply or 3oz. of 4-ply.
Pair of short sleeves: 1oz. of 3-ply or 1½oz. of 4-ply.
Pair of long sleeves: 3oz. of 3-ply or 4oz. of 4-ply.
Pair of men's socks: 4oz. of 4-ply or 3 to 4oz. of 3-ply.
Pair of gloves: 2oz. of 3-ply or 4-ply.
Children's vests: 2oz. of 3-ply.
Baby's bootees: 1oz. of 3-ply or 4-ply.
Baby's cardigan: 2oz. of 3-ply.
Baby's jumper: 1½oz. of 3-ply.
Baby's pilchers: 2oz. of 4-ply.

## Small Girl's Rainbow Cardigan

The little cardigan in the photograph was made from oddments of 3-ply and crochet wool. The largest amount of one colour was a skein of sky blue from which a little had been used. There was also a damaged skein of white and several very small balls of pink, yellow, mauve, and grey. It does not look as if it came from the scrap bag, and most little girls love these many-coloured jackets. Work out a colour scheme to suit the wool you have. As a general rule light pastel shades should be kept together; dark shades can be combined with bright clear colours like emerald green, scarlet, and blue.

There are about 100 rows of knitting after the ribbing in a cardigan of this size. That will give you a basis from which to calculate the number of rows to a stripe, making wider ones of the biggest balls and reserving the largest for the ribbing, cuffs, and strapping. The illustrated jacket had stripes arranged in this way. Four rows each of sky blue, pink, white, yellow, pale grey, and mauve, then two rows of white, repeated in the same order.

It is easier to work out the size and order of the stripes if the back and two sides are knitted in one piece up to the armholes. There is then only one set of loose ends of wool to be dealt with instead of three. Knit the two sleeves at the same time, then you will be certain to have the stripes an exact match. If they are knitted separately and there is insufficient wool of one colour to finish off the second sleeve, another colour would have to be substituted and the first sleeve pulled down and reknitted to make the pair match.

**Materials Needed:**

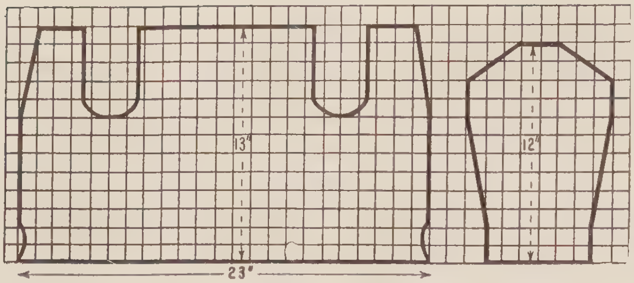
A little more than 3oz. of the wool oddments.
1 pair of No. 12 knitting needles.
1 pair of No. 10 knitting needles.
5 small buttons.

**Tension:**

7 stitches to the inch in width.
10 rows to the inch in length on No. 10 needles will give the measurements in the diagram (next page).

[*Sparrow Industrial Pictures photo.*

Child wearing cardigan.



1 square = 1in.

**Abbreviations:**

k., plain knit.
p., purl.
st., stitch.
tog., together.
st.st., stocking stitch.
inc., increase (work first into the front, then the back of the same stitch).
dec., decrease (work two stitches together).
m., make (by bringing the wool to the front of the needle and over it before knitting the next stitch).
single rib., 1 plain knit, 1 purl, alternately to the end of the row.

**Back and Fronts to Armholes:**

Begin at lower edge, and cast on 160 sts. on No. 12 needles. Knit into the back of the sts. on first row to give a strong edge. Work 2½in. of a single rib (about 26 rows). Change to No. 10 needles and work in stripes in st. st. for 5½in. to the armhole (about 54 rows).

**To Shape Armholes and Continue Back:**

On right side of work, k. 35 and slip these sts. on to a safety pin for the right front. Cast off 10, k. 80, and slip the next 35 sts. on to a second safety pin for the left front. Turn. Cast off 10, p. 70. Continue working on these 70 stitches for the back. Dec. once at each end of the next 4 rows (leaving 62 sts.). Work 4in. on these 62 sts. (about 44 rows). Cast off straight across.

**To Complete Right Front:**

Join wool at armhole end.

1st armhole row: p. 2 tog., p. to last 2 sts., p. 2 tog.
2nd row: k. till 2 remain, k. 2 tog.
3rd row: p. 2 tog., p. to end of row.
4th row: k. till 2 remain, k. 2 tog.
5th row: p. 2 tog. each end of row.
6th row: k. till 2 remain, k. 2 tog.
7th row: All p.
8th row: All k.
9th row: p. till 2 remain, p. 2 tog.

Continue shaping the front edge by decreasing every 4th row till 18 sts. remain. Work more rows on these sts. until armhole is required size. Cast off straight across. To complete left front, work as directed for right front but in reverse.

**The Sleeves:**

Cast on 44 sts. on No. 12 needles for cuff. Work into back of stitches for first row. Work 20 rows in single rib. Change to No. 10 pins and work 8 rows in st. st. in stripes to match back and fronts. Inc. 1 st. at both ends of next row and every following 6th row until the 9th inc. has been worked (62 sts.). Work 16 rows more.

**To Shape the Sleeve Top:**

Dec. 1 st. at both ends of every row till 16 remain. Cast off. Work the other sleeve in the same way.

**Strapping:**

Cast on 10 sts. on No. 12 needles. Work in single rib for 6 rows.

**Buttonhole Row:**

Rib 4, m. 1, p. 2 tog., rib.

Work 11 more rows and repeat buttonhole on every 12th row till 5 are worked. Continue knitting till the strap is long enough to go along the fronts and neck edge.

**To Make Up:**

Take a darning needle and run in coloured ends of wool. This is rather tedious, but gives a neat firm edge and is the only really satisfactory method of finishing off. Press all the work except ribbing. Join shoulder seams carefully, taking one stitch at a time from back and front edges. Join under arm seams, set into armholes, and press seams. Sew the strapping into place, stretching it gently round the back of the neck to ensure a good fit. Sew on the buttons.

**And there is the little jacket instead of sundry odd balls of wool.**

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# Pet Aversions

*HATS and heights; moths and mice; hypocrites and houseflies; crooners and catfights; spiders and snakes—these are some of the things most disliked by "Good Neighbours."*

*The first prize is shared by "Catriona," Hamilton, and "Waikikuparau," Cambridge; and "Tiggetty Boo," Kati Kati, received second prize. Commended: "Dukie," Uruti.*

## *First Prize (equal)*

HATS—buying them, wearing them —and now making them. When I totter exhaustedly into the last hat shop in the town in an effort to suit a combination of face, pocket, and husband, I hate hats heartily whatever I may have thought when I set out. A fine autumn morning with a tang of frost, a hopeful heart, and a yearning for "something new" have been many a decent matron's undoing. When you see a bewildered moon-face below a fur pom-pom, a wisp of tulle, and a bunch of crabapples you know that the autumnal madness has seized yet one more of your sex.

After trying model after model, none of which embellishes Modom's no doubt exclusive features, with prices casually calculated to raise Modom's blood-pressure, a passionate hatred of all head-coverings seizes me, and casting even bobby-pins to the winds, I hike for home where my husband, sons, and the placid bovines don't care whether I have a hat on my head or not, as long as I keep my hair on.

As for making them—tomorrow a W.I. play demands no less than five exclusive models. They lie before me arrayed along the back of the chesterfield. No one will know that they stand for "blood, sweat and tears." How I hate hats!

**—"Catriona," Hamilton.**

## *First Prize (equal)*

MY pet aversion is a person, or perhaps I should say a tribe (for they are many) with an infuriating slogan by which you may know them. "Guess who?" they cry playfully.

You are immune from their irritating attentions only if you do not possess a telephone; otherwise, you are fair game. "Guess who is speaking?" someone hurls at you across the ether. He usually rings up when you have milk on the stove, or a guest in the drawing-room.

"Think of Wellington," he next commands, since obviously his voice has failed to wake a chord in your memory. You think of Wellington—also, of the milk on the stove.

"Is it George?" you ask.

"No, try again."

"Not Bill?" you enquire.

"No, don't you remember Jim?"

"Why, yes," you reply quite truthfully. You can remember at least three Jims. Which can he be? you wonder in despair. It finally transpires that he is a cousin of the Johnstones to whose party you went with the Parkers one night.

The female of the guess-who species is even more exasperating. "Guess who's speaking?" she gurgles into your ear at 5.30 one frosty morning. Addressing you as "darling" she informs you that she just **had** to "give you a tinkle" from the station as she was passing through. Shifting your weight from one frozen foot to the other on the cold linoleum, you play the guessing game to its tedious conclusion. As children we were offered pennies on the "which hand will you have?" principle. This alone, of all annoying practices, is in any way comparable to the inane game of the guess-who girl.

Still, there is one consolation: my bete noir is doomed to extinction. The advent of television will very effectively silence the guess-who gang.

**—"Waikikuparau," Cambridge.**

### Competitions

*JUNE*

**What is your favourite quotation? Contributions are limited to 500 words, and the last day for receiving entries is June 15.**

*JULY*

**Where would you live if you had your choice? Would you make your home in a rural area or a suburban street, on a high hilltop or in a green valley, in the "land of the long white cloud" or in some far-away country overseas? The closing date for entries is July 15.**

"WHERE I WOULD LIKE TO LIVE."

**First prize, 10/-; second prize, 5/-.**

**MARY,**
**"Journal of Agriculture,"**
**Box 3004, Wellington.**

## *Second Prize*

YOU meet her type frequently, although she camouflages her personality very well under her pleasant, friendly approach. You don't at first associate her at all with gossip, but you don't have to know her very well before she begins to share with you her spicy little bits of scandal concerning the people round about. Unless you soon realise the kind of person she is, you'll find yourself being influenced almost against your will. She has such a clever way of wrapping up her remarks in some semblance of truth that even mere rumours sound possible. Her conversation runs on the sordid mistakes in life and destroys your faith in the folk concerned.

Oh, yes, she's deadly, my pet aversion! I sometimes wonder if she can possibly realise how destructive are her thoughts, or if her desire to loom important in the eyes of those about her and her craving for the sensational completely blind her to the wholly selfish, unkind role she plays. She asks direct questions when you're off your guard. You could kick yourself afterwards for being taken unawares, because it isn't easy to tell her a tale on the spur of the moment when you're naturally truthful and her suspicious eye is upon you. You can protest that you'd rather remain in ignorance of the stories she delights in, but next time you meet she'll persist in talking about the latest scandal. She simply doesn't see how you hate it and compare her with a cold blast ruining everything, destroying kindness and beauty and tolerance. If you told her this, she'd twist things about so that you'd be the nasty one, instead of her.

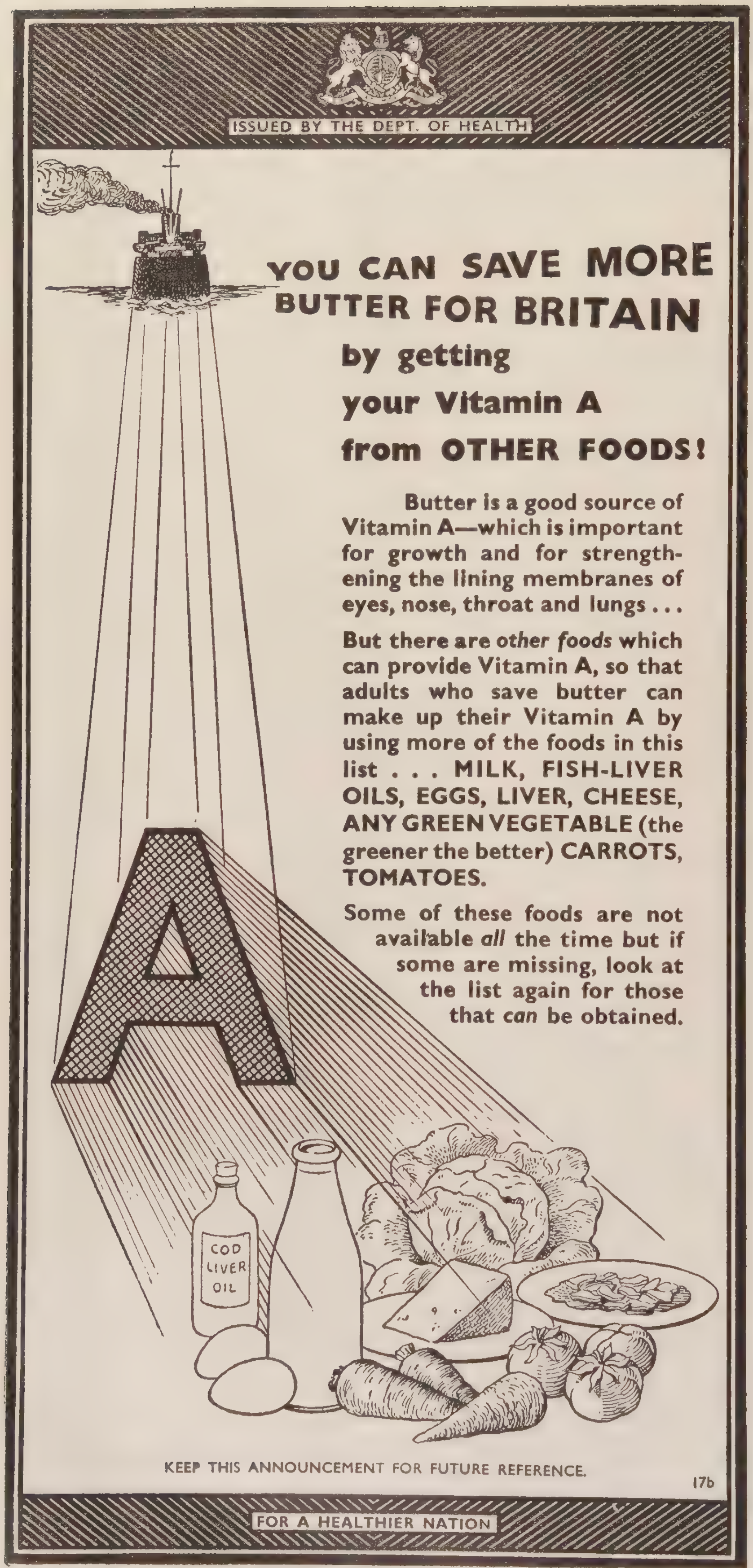
So friendly in manner, so sweet her smile, but underneath, her thoughts are so mean and unkind that I dread meeting my pet aversion.**—"Tiggetty Boo," Kati Kati.**

## *Commended*

EVEN to think of peach skins makes me shudder, for instance, and I dislike mice and loathe rats. I'm afraid of "horse stingers," because one stung me once, and I'm absolutely terrified of earthquakes. Slugs and snails and slaters drive me to distraction—but, oh, I had better stop, for this is not a list of my aversions but my pet one. I really think that big spiders, especially the large, black, hairy ones, are the worst of all. Strangely enough I don't mind little spiders, though I tell myself that, under a microscope, they would, beyond doubt, look just like their larger brethren.

This horror of black spiders seems to run in our family, for we would all run a mile rather than touch one, and have "forty million fits," as my sister puts it, if one drops near us.

I realise that it is silly and senseless, but I still scream for my husband if there's a big spider about. I decided that the dislike of these creatures had gone far enough in our family, so I determined that I would



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Some of these foods are not available *all* the time but if some are missing, look at the list again for those that *can* be obtained.

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17b

FOR A HEALTHIER NATION

tell my young nephew all about spiders, and pretend that I liked them very much, and that they were clever (as, of course, they are) and interesting. We studied spiders' webs, we saw them catch flies and insects, watched them repair broken webs, and so on. I was quite sure that I was suffering in a good cause—for suffer I did, often forcing myself to touch both the spiders and the webs when I would have preferred to have left them severely alone. Nephew was interested and I thought my ruse had been successful. At last I had knocked the family's pet aversion on the head.

The other day this small relation of mine refused to go into a shed.

"Why?" I wanted to know.

"Because there are spiders and their webs there," he declared.

"But you and I like spiders," I told him.

"You like spiders. I hate them," he stated very firmly.

So there we are! How do these pet aversions originate? But the fact remains that all my family, including myself, do hate big black spiders.—**"Dukie," Uruti.**

I WONDER if any other "Good Neighbour" shares my loathing for tomcats caterwauling at night. Ever since I can remember I have simply hated to hear them and block my ears and pull the bedclothes over my head in an endeavour to shut out the hateful noise. Strange as it may seem, I am very fond of cats and think there is nothing more soothing than a nice old puss purring at my feet or on my lap. And now my small daughter has seemingly inherited my aversion, for she cannot bear to hear cats fighting at night.—**"E.J.K.," Waikato.**

MY pet aversion is the person who fails to keep an appointment. I live in the backblocks and when a person who has promised to come to morning tea at ten, fails to arrive and at noon rings up to say how sorry she is not to have been able to come, my whole morning is upset. The extra piece of work which I like to do each day has been put off while I made something extra for morning tea, and attended to the flower vases, and saw that the children were spick and span. I know that one should always have things so nice that it would not matter who dropped in or at what time, but in the country when one has no help, it is not easy.—**"Mee Too," Blenheim.**

OH! how I hate moths; not the tiny ones, but the big, glassy-eyed, woolly creatures that come indoors on a summer evening. They simply terrify me the way they flop about. They always seem to be on the alert and ready to strike at any provocation—not that I often attempt to catch them. I'm more likely to hide my head under whatever shelter is handy until some good Samaritan comes to my rescue. **—"Tui," Hawke's Bay.**

# THE BODY'S NEED OF MINERAL SALTS, WATER AND FIBRE

**AS with the vitamins, the amounts of mineral salts required by the human body are small compared with the energy-producing and protein foods needed—so much so that the tendency has been to neglect them. Their importance to livestock is readily appreciated by farmers, but families as well as animals need food containing minerals. We need to trust what the scientist tells us about ourselves as readily as we trust and use the efficient machines he produces—the tractors, harvesters, milking and washing machines, wireless sets, and refrigerators.**

[Internal Affairs Dept. photo.

IT is strange that we do not, as our bodies are the one possession we are sure of retaining from the cradle to the grave. Our appetites are not yet reliable guides. They are not sensitive to the hidden hungers of all the tiny living cells that make up the tissues and organs.

All these cells are composed of chemical elements held together in many chemical combinations. Oxygen alone constitutes 65 per cent. of the body weight, and with hydrogen accounts for three-quarters of it. Carbon is 18 per cent. Add nitrogen and sulphur, and these five elements together account for 96 per cent. of body weight. They are supplied to the body by the carbohydrates, fats, and proteins in the food.

The remaining four per cent. of weight consists of ten other elements—calcium, phosphorus, sodium, potassium, magnesium, chlorine, iron, manganese, copper, and iodine, and there may be traces of many more. They are contained in the mineral salts, found combined with the proteins, fats, and carbohydrates in food **as they occur in nature.** Purified or refined food substances, such as the pure fats, cane sugar, cornflour, and highly-milled grains, are practically free from mineral salts. All these elements are essential for building tissue and maintaining the life of the cells. It is impossible to say that some are more important than others, although some are needed in much larger amounts.

As all these minerals are continually being lost from the body in the excretions, it is obvious that the mineral content of the diet is of primary importance. We need mineral salts as building materials, with protein, and also as body regulators. All the salts interact in the exchange of body fluids and in maintaining the neutral condition (neither acid nor alkaline) of the body. Table I (next page), from Dr. Bogert's book "Nutrition and Physical Fitness," gives a clear summary of our need of mineral salts. It is not possible here to expand the fascinating story behind these somewhat bare statements, but it is hoped that there may be further opportunities to meet groups of country people who desire to follow up this interesting and vital subject.

*IN the fourth of her articles on nutrition, Dorothy Johnson, Rural Sociologist, Christchurch, deals with the sources of essential mineral salts. In the June issue she will discuss the question: "Are we ready to be instructed in the use of the food we have for the best advantage of everybody?"*

It is considered that if four mineral elements—calcium, phosphorus, iron, and iodine—are well provided for in the diet, all the others will be present. It is not only possible, but only too common, for diets to lack sufficient of these minerals.

## Need of Calcium & Phosphorus

The body must have a sturdy bone structure to carry its weight well and protect its internal organs. A well-built framework, too, makes for a well-shaped and correctly-poised body. Bow legs, pigeon chests, and slouched figures should not be as common as they are. Calcium and phosphorus are essential for proper bone development. An eleven-stone man should have about 2lb. 5oz. of calcium and 1½lb. of phosphorus in his body, distributed in every tissue, though between 90 and 99 per cent. of both is in the bony framework, including the teeth.

Without calcium, blood and lymph will not clot. (It is essential that blood should clot to plug the hole in a damaged blood vessel). Without it the heart will not beat, nerves cease to conduct, and the muscles to function. It is the calcium in milk which makes it clot when it meets the juices of the stomach. Phosphorus alone is highly poisonous, but in combination with other substances it energises many of the chemical reactions

## TABLE I.

### Need for Mineral Salts.

| As building materials. | Elements especially needed. | Lack of these elements causes . . . |
|---|---|---|
| Bones and teeth | Calcium and phosphorus | Stunted growth, weakened or soft bones, malformed or decaying teeth, rickets. |
| Hair, nails, and skin | Sulphur | |
| Soft tissues, chiefly muscles | All salts, especially potassium, phosphorus, sulphur, chlorine. | |
| Nervous tissue | All salts, especially phosphorus. | |
| Blood | All salts, especially iron, calcium, sodium, phosphorus, chlorine. | Lack of iron or copper results in less than normal amounts of haemoglobin in the blood, a condition called nutritional anaemia. |
| Glandular secretions | Stomach secretions, chlorine; intestinal secretions, sodium; thyroid secretions, iodine. | Lack of iodine results in enlargement of the thyroid gland—simple goitre. |

| As body regulators to maintain normal . . . | Elements especially needed. |
|---|---|
| Exchange of body fluids | All salts. |
| Contractability of muscles and irritability of nerves | All salts, especially balance of calcium as against sodium, potassium, and magnesium. |
| Clotting of blood | Calcium. |
| Oxidation processes | Iron and iodine. |
| Neutrality of the body | Balance between:<br>Basic elements—sodium, potassium, calcium, magnesium, and iron.<br>Acidic elements—phosphorus, sulphur, and chlorine. |

of the body. It is essential in muscle contraction and in the structure of the cells, particularly the marrow and nerve tissue. It is also found in many proteins, particularly milk and the yolks of eggs.

Calcium and phosphorus play such an important part in body processes that if there is insufficient in each day's food the body draws from the bones and teeth to meet its need. That process has been observed by means of Rontgen rays in animals kept on low calcium diets. That is what happens during pregnancy and lactation if mothers do not meet the greatly increased need for calcium. The old saying "A tooth for every child" has been only too true when the mother's diet has been poor in calcium.

A lack of vitamin D (the sunshine vitamin) prevents the best use of these two minerals. All three must be present to prevent rickets, which is the result of insufficient calcium and phosphorus being deposited in the bones. Rickets is seldom, if ever, seen in the tropics, since sunlight acts on the skin to form vitamin D. Neither should it appear among rural people in a climate like that of New Zealand; the exposure that will bring about a gradual tanning of the skin during the summer will store up sufficient vitamin D to supply the body's needs during the winter. But even if severe cases are rare, at least 14 per cent. of New Zealand school children who have physical defects have deformities of the bone structure. Children need not only enough minerals to meet daily needs, but must also have enough to meet the needs of growth and for storage in the enlarging bones. In the winter vitamin D should be added to their diet in the form of fish-liver oils.

### *Iron is Vital*

Iron is needed to make the pigment in the red blood cells, called haemoglobin. It carries oxygen from the lungs through the arteries and capillaries to every cell of the body by means of the iron. With too little iron, the oxygen transport system is checked and robust health impossible. Any reserve iron is stored in the liver, the bone marrow, and the spleen ready to be used when needed. When iron supplies are low we feel listless and low in vitality, even though we may not be anaemic.

Iron deficiency is likely to show up in the first two years of life, at puberty, and in women during pregnancy and at the time of the change of life. Most men get plenty of iron from their food without planning because they usually eat more food in general and more meat and eggs in particular, both of which are good sources of iron. Women, however, need to take care that they and their children—particularly babies and adolescents—have enough iron from their food, especially as not all the iron

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taken into the body is in a form that can be absorbed.

Curiously enough, copper is needed in this connection, but this element is contained in nuts, cereals, poultry, fish, meat, vegetables, and fruits, and especially in liver, oysters, chocolate, and cocoa. So there is no need to be without it. Most women will be quick to note that chocolate after dinner for the whole family can be pleasantly justified, though not the indiscriminate use of it between meals—for quite different reasons.

## *Little Iodine, but Important*

Iodine is a good example of the importance of very small things. It constitutes only about three parts a million of the body weight and we need only one-hundredth as much iodine as iron in the food. It is an essential part of the substance the thyroid glands pour into the blood. This is the substance which stimulates the rate of oxidation (or burning) in the tissues. If the stores of iodine are depleted, less foodstuffs are oxidised and there is a tendency to increased weight, lowered vitality, and sluggish mentality. The thyroid which is working under difficulty, when insufficiently supplied with iodine, becomes enlarged, a condition known as simple goitre. The presence of goitre has been recorded from the earliest times, and many reasons have been given for its occurrence, from carrying too-heavy loads on the head or drinking snow water, to bacterial infection. Not until 1895 was the real reason discovered—lack of iodine in the food.

## *How Much is Needed*

### Calcium and Phosphorus.

Experiments have shown that a child needs from 1 to 1.4 grams of calcium and one gram of phosphorus in the food daily. Because growth has ceased, adult requirements are a little less—about 0.8 grams of calcium, except for women in pregnancy and lactation. Calcium deficiencies are much more frequent than is commonly realised. We are all born calcium poor—that is, with soft flexible bones; it is necessary for our survival of the birth process. With the right food, not only the amount but the percentage of calcium in our bodies increases rapidly. It has been found that if the calcium content of food is increased to double the minimum amount it gives increasing benefit throughout life and adds to the stamina of the following generation.

### Iron and Iodine.

Twelve to 15 milligrams of iron are necessary daily for an adult. Children as young as six years need about 8 milligrams, but they eat much less than older people. That makes a careful selection of iron-rich foods all the more important for children. Note the list of servings of food in Table II. The amounts of iodine needed are about one hundredth of the iron necessary.

## *Food Sources of Minerals*

### Calcium and Phosphorus.

Milk is the best source of calcium, cheese the next best. One pint of milk or 3⅕oz. of cheese supplies 0.67 grams of calcium, which is nearly the full adult requirement for a day. With a pint of milk a day for every adult, and one and a half pints for growing children, there is no need to worry about calcium. Without milk, however, there is difficulty. To obtain as much calcium as in one pint of milk we should need 2lb. 3oz. of oatmeal, about 2½lb. of spinach, nearly 3lb. of carrots, over 14lb. of meat, 17½lb. of rice, 11½lb. of potatoes, or between 21 and 24 eggs.

**These facts are worth pondering over, especially in the many farm homes where a dislike that amounts to contempt of milk has been allowed to develop.**

If milking and handling milk produce a dislike of it as food, the children of dairy farmers who have that reaction should never be allowed near their parents at meal times. Are they willing to produce on the farm the daily equivalent in other foods? This is what must be supplied daily for each adult, choosing the fruits and vegetables that are highest in calcium, even with the aid of some milk:—

| | Proportion of daily calcium requirements |
|---|---|
| ¼ pint milk | ¼ |
| ⅝ cup cooked carrots | 1/12 |
| ⅔ cup cooked cauliflower | ⅕ |
| ¾ cup cooked green peas | 1/20 |
| ½ cup cooked parsnip | 1/12 |
| ¾ cup spinach | ⅐ |
| 1 egg | 1/20 |
| 8 dried figs | ⅛ |
| 1 orange | 1/15 |

All that adds up to 0.693 grams of calcium, so it would need to be doubled for children. There are five vegetables in the list, and teaching children to eat vegetables is not one of the major joys of life. Consider the quantities needed if only one vegetable besides potatoes is obtainable, which is too often the case. It would mean nearly five cups of carrots, or two cups of cauliflower, or four and a half cups of spinach, or nearly ten cups of green peas.

Dr. E. N. Todhunter, whose figures are quoted above from her book "Everyday Nutrition," says: "In studies made by research workers at the Home Science Department, Otago University, it was found that calcium is one of the constituents that is most likely to be lacking in the average diets of New Zealanders, and especially in the diets of children. Later studies carried out by the Nutrition Research Department of the Medical School, Dunedin, have confirmed this, as between a quarter and a half of the families studied were found to have diets with insufficient calcium. It was noticed that whenever the daily consumption of milk was less than half a pint the calcium in the diet was 20 per cent. or more below the amount required for good nutrition.

When the calcium needs of the diet are met, sufficient phosphorus is also supplied. However, liver and lean meat are the richest sources of this mineral.

### Iron.

The best food sources of iron are egg yolks, liver, heart, kidneys, whole wheat, dried peas and beans, oysters, oatmeal, spinach, lean beef, dates, prunes, green peas, lettuce, and brussels sprouts (the dark green outer leaves have more than the inner white ones). Table II is from "Everyday Nutrition."

### Iodine.

Seaweeds and fish are the best sources of iodine, especially those fish that feed on kelp, such as cod or salmon, a serving of which would supply a day's need. Fish-liver oil is a good way of supplementing a child's diet. One teaspoonful of seameal pow-

### TABLE II.

### Iron in Foods.

| Food. | Size of serving. | Amount of iron (milligrams). | Approximate fraction of total daily requirement. |
|---|---|---|---|
| Egg | 1 medium | 1.32 | 1/11 |
| Oysters | 4 large | 3.14 | ⅕ |
| Potato | 1 large | 1.63 | ⅑ |
| Asparagus | 12 stalks | 1.00 | 1/15 |
| Milk | 1 pint | 1.34 | 1/11 |
| Apricots, dried | 8 halves | 1.60 | ⅑ |
| Bread, wholewheat | 2oz. | 0.80 | 1/19 |
| Oatmeal, cooked | 1 cup | 1.13 | 1/13 |
| Lean beef | 4oz. | 3.00 | ⅕ |

Total: 14.96 milligrams, the amount needed daily.

## TABLE III.

### Some Common Foods and Their Most Important Contributions to the Body's Needs.

#### MILK AND CHEESE.

| | |
|---|---|
| Fresh whole milk (or its equivalent in unsweetened condensed or dried whole milk) .. .. .. | The main source of calcium and vitamin B2. Also supplies protein, phosphorus, vitamin A, and vitamin B1. |
| Fresh skim-milk and buttermilk (or its equivalent in dried skim-milk or dried buttermilk) .. .. .. .. | Makes same contributions as whole milk, except vitamin A. |
| Cream .. .. .. .. .. .. .. .. .. | Contributes more vitamin A than whole milk and less of the other vitamins and minerals. |
| Cheese made from whole milk .. .. .. .. .. | A generous serving supplies the equivalent of one cup of whole milk in protein, calcium, phosphorus, and vitamin A. |
| Cottage cheese .. .. .. .. .. .. .. | A good source of protein and phosphorus, but low in the other minerals and in vitamins. |

#### FRUITS.

| | |
|---|---|
| Fruits in general .. .. .. .. .. .. .. | All help in meeting the body's needs for iron, vitamin B1, and vitamin B2. Some fruits make special contributions. |
| Oranges, grapefruit, strawberries .. .. .. .. .. | These are the best source of vitamin C. One average serving will supply a day's need. |
| Apples, bananas, peaches, pears, and most of the common fresh fruits, raw .. .. .. .. .. .. | Eaten raw in generous quantities, they provide significant amounts of vitamin C, although much less of it than the fruits listed above. |
| Peaches, apricots, prunes, and other yellow-fleshed fruits | Supply important amounts of vitamin A. |
| Dried apricots, dates, figs, prunes, and raisins .. .. | Better than average sources of iron. |

#### VEGETABLES.

| | |
|---|---|
| Vegetables in general .. .. .. .. .. .. | Important sources of various minerals and vitamins, some more than others. |
| Silver beet, spinach, turnip greens, watercress, and other thin, dark-green leaves .. .. .. .. .. | Eaten raw or properly cooked, they are an important source of iron, vitamin A, vitamin B1, and vitamin B2. Generous servings of such greens, raw, supply liberal amounts of vitamin C. Many of these greens help to fulfil the body's needs for calcium. |
| Broccoli, peas, string beans, kumaras, carrots, and other green or yellow vegetables .. .. .. .. | Valuable chiefly for vitamin A. Kumaras are economical energy foods. |
| Cabbage, raw or cooked conservatively .. .. .. | A good source of vitamin C. |
| Tomatoes, raw, cooked, or commercially canned .. | An excellent source of vitamin C and a good source of vitamin A. |
| Potatoes .. .. .. .. .. .. .. .. | Baked or boiled in their skins, potatoes, and especially new potatoes, are a good source of vitamin C and provide appreciable amounts of iron and vitamin B1. They are also economical energy foods. |
| Mature beans, peas, and other legumes, such as peanuts and lentils .. .. .. .. .. .. .. | Good sources of protein, iron, vitamin B1, and vitamin B2. They help to meet the body's needs for calcium and phosphorus, and are economical energy foods. |

#### EGGS, LEAN MEAT, AND FISH.

| | |
|---|---|
| Eggs; lean muscle meat, including poultry; liver, kidneys, and other organs; fish; shellfish, such as oysters .. | Most important for protein, iron, vitamin B1, vitamin B2, and nicotinic acid. These foods also supply phosphorus. Eggs and liver supply vitamin A. Salt-water fish and shellfish supply iodine. |

#### GRAIN PRODUCTS.

| | |
|---|---|
| Grain products in general .. .. .. .. .. | Economical energy foods that furnish significant amounts of protein. |
| Dark, wholemeal or enriched bread, flour, and breakfast cereals .. .. .. .. .. .. .. .. .. | Important sources of iron, vitamin B1, and vitamin B2. |
| Macaroni, spaghetti, rice .. .. .. .. .. .. | Refined grain products which cannot take the place of potatoes or other vegetables. |

#### NUTS.

| | |
|---|---|
| Nuts in general * .. .. .. .. .. .. .. | Concentrated sources of energy and protein and fairly good sources of phosphorus and vitamin B1. |

#### SUGAR AND SYRUPS.

| | |
|---|---|
| Refined sugar, corn syrup, honey, molasses or treacle, sorghum syrup .. .. .. .. .. .. | Concentrated energy foods. Dark molasses and treacle also contribute calcium and iron. |

#### FATS AND OILS.

| | |
|---|---|
| Dripping, butter, margarine, lard and hardened vegetable fats, olive oil, bacon, salt pork, cod-liver oil .. | Concentrated energy foods. Butter, cod-liver oil, and margarine to which vitamin A has been added are important sources of vitamin A. Cod-liver oil is also very rich in vitamin D. |

---

* This does not include the peanut, which is a legume, and is therefore listed with the vegetables.

der gives half the needed daily intake of iodine. There is no goitre in Japan, where much fish is eaten. A pint of milk supplies about a quarter of an adult's needs. Eggs, wholemeal, and leafy vegetables have some iodine, but it varies with the iodine content of the soil. Iodised salt is a good way to increase the daily iodine intake. If a reliable brand is used for cooking and the table, so that each person averages a teaspoonful a day, the whole requirement for iodine should be met.

### A MAN OF IRON

*Of the Iron Duke you've often read,*
*"Up Guards and at 'em!" he boldly said.*

*If on iron foods he'd not been fed,*
*To make his blood so rich and red,*

*(Beef, porridge, eggs, and good brown bread,*
*With treacle black and thickly spread),*

*He might have been at home in bed,*
*Anaemic, weak in limbs and head.*

*The Guards' retreat he might have led;*
*He might have shouted as he fled,*

*"If we stay here, we'll soon be dead,*
*Up Guards, I'll race you home!" instead.*

*Then tears of shame would England shed,*
*Fearing to feel the conqueror's tread.*

*The moral is that if you're fed*
*With foods that make your blood bright red,*

*(Greens, liver, fruit, and wholemeal bread,*
*With prunes and nuts and raisins spread),*

*No foes you'll fear, no tasks you'll dread,*
*You'll up and at 'em, as Wellington said.*

—Lilian Fraser-Smith.

**It is important to remember that mineral salts, like some vitamins, are soluble in water, and faulty methods of preparation and cooking will result in heavy losses of these valuable constituents.**

## *Water and Fibre*

Between two and two and a half quarts of water leave the body each day in perspiration and in the excreta. This loss is made up by the fluids taken (water, beverages, and soup), by the water in solid foods (bread contains 35 per cent. water), and by water formed in the body as a result of chemical changes. This so-called "metabolic water" may amount to a pint a day. The usefulness of water is as a solvent; most of the body materials, except bone, skin, cartilage, and fatty substances, will dissolve in it. Chemical reactions between substances cannot take place unless they are in solution (the contents of a body cell is about three-quarters water). Water helps to promote the flow of digestive juices and dilutes the food taken. About 10lb. of water is in use constantly to carry soluble food to the tissues, and the waste products to the kidneys for excretion.

Its most conspicuous work is in regulating the body temperature. It equalises temperature by transporting heat from one part to another in the body fluids. Its evaporation from the skin and lungs rids the body of unwanted heat. Water is, strictly speaking, a tissue-building material, because it is an essential constituent of every kind of tissue, from one like bone which is a third water, to one like blood which is four-fifths water. About two-thirds of a man's weight is water.

Some non-digestible material is also needed in the food. This is supplied by the fibre which is part of all natural vegetable foods. The carbohydrates, proteins, fats, and minerals are usually 90 to 98 per cent. absorbed in favourable circumstances. If it were not for the bulk of the non-digestible substances there would be little stimulus to the muscles of the intestines to move the food along and procure excretion of waste material. But that is not the only factor to be taken into account to avoid constipation. If high-residue foods are given a prominent place in the diet there will be no lack of bulk in the intestines. Low-residue foods are sugar, white bread, refined cereals, meat, potato, fats, and milk. Among high-residue foods are fruits (if eaten with skins), wholemeal bread, and whole-grain oatmeal.

A summary of the factors which have been dealt with in this series is to be found in a table in last month's article on vitamins showing what the day's food should provide and why. Table III, opposite, is from "The Road to Good Nutrition," by Dr. L. Roberts. It lists the everyday foods from a different angle and shows what contribution they make to the body's welfare.

**This article reinforces the plea made in the previous one for still greater attention to the farm garden and orchard. The question to be asked is: Do our farms feed us really well? The answer needs to be based not so much on our likes and dislikes as on our understanding of the principles briefly sketched in these pages.**

### *ROSEMARY*

*The scent of rosemary is like incense, and its upthrust fronds like branches of green candles which seem to burn with a grey-green flame. Always they point to the sky. It is this intensity of worship which gives rosemary its aura of holiness and sets it a little apart, as though rarefied.*

### *QUEER TASTES*

We have a young pup named Darkie who has acquired a taste for eggs. Dad told me to cure him by giving him an eggshell filled with mustard. I placed it in one of the nests and then released Darkie. He ran round for a while until he thought I was out of sight, then he made off in the direction of the fowlhouse where I pursued him. He took the egg between his teeth and broke it, then to my astonishment, he licked all the mustard out of it just as if it were an ordinary egg. He still goes on a daily expedition to the henhouse, so next time I'll try using pepper. Perhaps he'll treat that as a delicacy, too!—**"Bella Rob," Putaruru.**

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### *Many Varieties of*

# STEAMED PUDDINGS

### *from one Standard Recipe*

By EVA TOPPING, *Rural Sociologist, Auckland.*

*STEAMED puddings and dumplings are winter fare. They are usually considered too heavy for hot-weather meals.*

*They can be made with suet, dripping, or other fat; with flour, breadcrumbs and flour, or flour and another cereal. The mixture can be quite plain or very rich—sweet for a dessert, or savoury for the meat course. Whichever kind is made, a standard recipe can be used, modified at will. Methods of making are very similar.*

## Preparation of Equipment

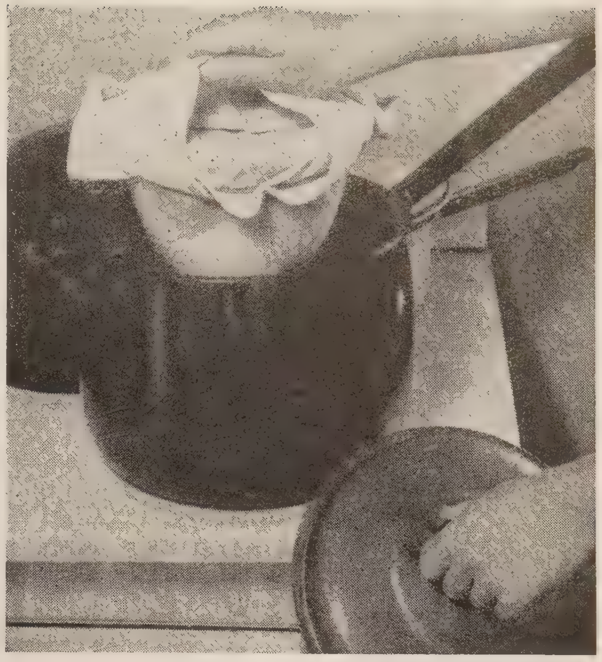
FIND a bowl or tin for the pudding which will fit inside the saucepan or steamer. Make sure the saucepan has a well-fitting lid. Fill it with hot water to reach a third to half-way up the basin, and put it on to boil. Grease the inside of the basin well with mild-flavoured fat if the pudding is to be sweet; stronger-flavoured fats, such as bacon dripping, may be used only for savoury puddings. A piece of greaseproof paper, buttered or brushed over with melted dripping and large enough to cover the pudding, should be pleated on to the rim of the basin. It will be quite watertight, but a cloth is frequently tied on, the corners folded back and pinned together, which makes removing the cooked pudding from the saucepan easier and safer. Keep a kettle boiling to replenish the water in the saucepan if it boils away.

Fill the basin or mould only two-thirds full of mixture to allow room for the dough to swell. If a steamer is being used, make sure that the lid fits tightly and the steamer fits well into the saucepan so that the minimum of steam escapes. When the pudding is cooked lift it out of the saucepan and let it stand in the basin from one to two minutes, according to size. Remove the covering, run a knife round the edge, and invert the basin on a warmed serving dish. The pudding should "turn out" easily. Sauce or custard may be poured round the pudding or sent to the table separately.

## Foundation Ingredients

Flour or mixtures of flour with breadcrumbs, oatmeal, bran, or cornflour are used. Sift the flour, and if breadcrumbs are used, make them very fine by rubbing between the hands or on a grater. Fat or shortening is used in the proportion of a quarter to half a pound for each pound of flour. Suet should be freed of skin and gristle, and grated finely or chopped. Sprinkle with some of the measured flour while chopping to prevent the fat coating the knife. Use from a quarter to half a teaspoon of salt, according to taste.

For sweetening, sugar, honey, syrup, treacle, or jam can be used—a quarter of a pound to one pound of flour. For flour alone, up to four level teaspoons of baking powder to a pound of flour is needed. When breadcrumbs are used less baking powder is required, as the air enclosed by the breadcrumbs helps to make the pudding light. When fruit juice or golden syrup is used in the pudding, substitute baking soda for the baking powder. Liquid for mixing can be milk, fruit juice, water, or milk and water. Use enough to give a slack dough.



Flavourings and fillings are selected according to the type of pudding required—spices, essences, dried fruits, lemon rind, and fresh fruits for dessert; herbs, onions, vegetables, and meats for savoury puddings. Eggs may be used in steamed puddings according to the richness desired, with a maximum in plum puddings of eight eggs to a pound of flour and breadcrumb mixture. Dried fruits may be used up to a maximum of two and a quarter pounds to one pound of flour-and-breadcrumb mixture for rich plum pudding.

Allow from three to eight hours' steaming, according to the size and richness of the pudding. Take care that the surrounding water is continuously boiling.

### PLAIN STEAMED PUDDING

1lb. flour.
6oz. finely-chopped suet.
¼ teaspoon salt.
3 level teaspoons baking powder.
3 to 4oz. sugar.
Milk, milk and water, or water to mix.

**Method:** Grate or chop the suet very finely, sprinkling with flour from the measured amount. Sift the flour, baking powder, and salt into a bowl, and add the sugar and chopped suet. Add liquid till a stiff dough is made. Turn into a well-greased basin, filling only two-thirds full to allow for expansion in cooking. Cover with greaseproof paper firmly secured under the rim of the basin, or with paper and pudding cloth. Put into the saucepan with boiling water to reach one-third to half-way up the side of the pudding bowl, and cover closely. Boil gently but continuously for three hours, adding more boiling water if necessary.

## Variations

With this standard recipe for a guide, many different puddings, sweet and savoury, can be made. Here are a few of the varieties:—

### JAM LAYER PUDDING

Roll the suet paste out on a floured board and cut rounds of varying size to fit the basin. Spread the jam, thinned with a little hot water, between the layers.

### APPLE PUDDING

Roll out the suet crust and line the basin, keeping enough to make a lid. Peel, core, and quarter the apples, add sugar to sweeten and cloves to taste (about six is the usual number), or a teaspoonful of mixed spice or ground ginger. Line the basin with crust, fill with sliced apples, sugar, and spices. Roll the remaining crust into a circle to fit the basin. Moisten the edges and press together.

### GOLDEN SYRUP PUDDING

Put two or three tablespoons of golden syrup in the bottom of a greased basin before putting the mixture in. A teaspoon of ground ginger can be added to the flour when sifting. Continue as for plain pudding.

### ROLY-POLY

Roll the dough into a thin strip, spread with jam, or golden syrup sprinkled with soft breadcrumbs, then roll up. Dip a clean pudding cloth in boiling water and flour thickly on the inside. Wrap it round the pudding and tie firmly at each end. Boil for two and a half hours and turn the pudding out on to a warmed dish.

### TREACLE PUDDING

Use treacle instead of sugar, omit the baking powder, and add a level teaspoon of baking soda.

### SPICY FRUIT PUDDING

Use half flour and half breadcrumbs. Add any kind of fruit or dried fruit mixture and two level teaspoons of mixed ground spices. Use half the amount of baking powder and add a well-beaten egg. Serve with custard sauce.

### CHOCOLATE PUDDING

Use half flour and half breadcrumbs, and a mild-flavoured dripping instead of suet. Cream the dripping and sugar, and add the flour sifted with one or two tablespoons of cocoa, according to the flavour liked. Mix to a soft dough with milk. A beaten egg can be used in place of some of the milk. Serve with chocolate sauce.

### MARMALADE PUDDING

Use breadcrumbs and flour. Add one egg, omit two ounces of sugar, and substitute two large tablespoons of marmalade. One teaspoon of baking powder can also be omitted.

### SAVOURY PUDDING

Use half flour and half oatmeal. Omit the sugar, and add chopped sage, parsley, chives, and thyme to taste. Add bacon cut into small squares if liked. Steam for two and a third to three hours. Served with rich brown gravy and vegetables this pudding makes a good lunch dish.

### SAVOURY DUMPLINGS

Make half the quantity of mixture. Omit the sugar and add pepper, salt, chopped parsley, and other herbs. Roll into small balls, drop into a simmering stew or soup and cover closely. They will take about half an hour to cook. Serve as soon as ready.

### MEAT PUDDINGS

Omit the sweetening agents and roll out the crust. Line the basin, add the prepared meat (steak and kidney, or mince, with diced carrot and onion). Cover with a round of suet crust; moisten the outer edge of the round to make it adhere to the crust lining. Steam for three hours. Cut a circle in the crust and pour in half a cup of boiling water or prepared and heated gravy. Send it to the table in the basin, with a dinner napkin pinned round it.

Here is a recipe from the British Ministry of Food which helps to make the most of the meat ration, and is also sparing with the fat.

### SAVOURY SUET PUDDING

**Crust.**—8oz. flour; ½ teaspoonful salt; 1oz. suet, lard, or dripping; 1oz. grated raw potato; 2 level teaspoons baking powder; water to mix.

**Meat filling.**—8oz. mince or chopped beef, lamb, or veal; 1oz. flour; 1lb. diced vegetables; 1 chopped leek or onion; 1 level teaspoon salt; pinch of pepper; ¼ pint stock or gravy.

**Method.**—Mix the flour, baking powder, and salt. Rub in the fat and mix in the grated potato. Mix to a stiff dough with cold water. Line the greased basin with three-quarters of the crust. Mix the meat with the flour. Arrange layers of the vegetable, leek, and seasoning in the basin. Add the stock or gravy. Roll out the remaining piece of crust to fit the top. Press the edges together. Cover with greased paper and steam for two and a half to three hours.

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MARY'S AT HOME

I AM a newcomer to our district and a new reader of your pages, and this is my first attempt at a contribution. I wish to tell you how I appreciate the "Good Neighbour" section and I hope Mary will be "at home" to me, too. I am sure there must be many like myself who put off writing that small item for the "Journal" or that letter of thanks, congratulation, or condolence till some more convenient moment. They will agree with me that the pen-name that came unbidden to my mind is most apt. The word procrastination is rather long so, as you see, I have shortened it and sign myself instead—**"Pro Cra," Waimauku.**

WHILE reading a book, "Wayfaring through Scotland," I came across a place name, Fintry. It was such an attractive and unusual name that I wondered if anyone would know of the place and its meaning.—**"Fintry," Glencoe.**

FOUR years ago when our small lass was only a toddler her uncle, whom we had not seen for years, came to spend part of his final leave with us before going overseas. Our usually shy and reserved little one liked him from the first moment and soon would not be parted from him. She was a cheery wee girl with such a happy smile that he christened her Smiler and has never called her anything else all through the years when his letters have been coming regularly from the Pacific and later, from Europe. Now a schoolgirl she anxiously awaits the day when she will again see the uncle who always calls her "his little Smiler."—**"Smiler's Mum," Te Kiri.**

I OFTEN think how interesting it would be to meet you and other "Good Neighbours." I like to imagine what the different ones are like and often think about you—and wonder!

I enjoyed your description of your sunroom. You see, I have been busy with the paint brushes lately and feel very thrilled with the result. New paint makes a wonderful difference and is well worth the expense. I have finished the sunporch where the two eldest boys sleep, and my orange curtains bring sunlight even on the dullest days. These curtains were really made from remnants I had. I pieced them together and am now trying to create little nursery animals to applique on them. We have completed the dining-room (it has new floral curtains) and now we are tackling the rather big job of painting the outside of the house. A busy farmer and his wife get little time for a major undertaking. Still, it's getting done slowly and we have three small boys to help—or hinder—us as we work!—**"Fruffy," Ngaroma.**

I DO love your original illustrations and I enjoyed the "Strange Coincidences" entries immensely. They were all so entertaining.—**"Tiggetty Boo," Kati Kati.**

I AM a new reader of your pages and would like to become a "Good Neighbour." After living in a big city all my life I am now married and have come to the country to live. I gaze upon a green landscape from every window—the green of the distant hills; tall gums and macrocarpas with their dark branches giving shelter from the strong winds; an orchard laden with fruit slowly ripening in the sun and sometimes falling to the grass below. In front of the house we have our vegetable garden, which now has

# Garden Work for June

IN places where severe weather has been followed by a thaw, bedding plants, perennials, and newly-planted trees or shrubs may have been lifted by the frost and left loose in the soil. The soil round such plants should be tightened as soon as it is practicable to go on the ground. Wind-rocking is the cause of many casualties in the flower garden.

Winter jessamine *(Jasminum nudiflorum)*, in flower or in bud, is excellent for cutting, as it lasts well in water and will open after it is cut. Hard cutting suits the jessamine, which will flower next year on this year's growth. As soon as it finishes flowering a few strong growths should be retained, and all others cut back to within a few buds of old wood.

Continual mowing tends to make the surface soil of lawns too hard. It is worth while at this season to prick the surface with a fork, digging it vertically well into the ground every 6in. over the whole lawn. The small holes left by the prongs of the fork allow air to penetrate into the soil and lead to a better root action.

Leaves which have drifted into corners, or are covering up small choice plants, should be cleared up and put on the compost heap.

The common hydrangea *(Hydrangea hortensis)* should have been pruned after flowering. It can still be pruned, if necessary, by cutting out all weak shoots. New shoots which have not flowered should be left unpruned, while those which have flowered should be shortened by removing the dead flower heads and a length of stem. Good red colours are developed only if the ground is alkaline, and a heavy dressing of lime will improve the tone of red or purple varieties. Blue colours can be intensified by planting in a lime-free soil, and by watering freely from the time growth starts with a solution of 1 teaspoonful of alum in a gallon of water. The solution should be made up the day before it is needed, and allowed to stand overnight before being used.

A useful winter job is the renewal of garden labels. No label should ever be used without first being painted with white lead paint, as this makes it legible much longer. The most satisfactory plan is to rub a little paint hard into the label, using a cloth over the finger instead of a paint brush. Then write the label with a soft, blacklead pencil while the paint is still wet. A label so prepared will remain legible for years.

row upon row of vegetables growing in readiness for the winter. There are many plants in the flower garden and I watch with interest the various buds unfold.—**"Green-eyed Beauty," Apiti.**

"THE Story Behind Your Pen-name"—I wonder, Mary, what reason dictated your choice of this competition—was it just the necessity to choose a congenial and popular one, or was it sheer feminine curiosity? Do you, like me, spend hours wondering why and who and what sort of personality lies behind those names—as mysterious sometimes as the cryptic messages in the personal column.—**"Fleurette," Takanini.**

THIS little farm of ours, part of a beautiful valley, was so green when we came. Alas, the grass is gone and only hard, baked earth remains. Our acres are no longer green and I feel almost compelled to change my pen-name to "Parched Earth" or "Brown Fields." Still, rain will come again and the land I love will be green once more.

**—"Green Acres," Whangarei.**

I HAVE a small daughter just two-and-a-bit, but already she shows signs of housewifely zeal, and I hope one day she will also be a "Good Neighbour." While I was writing to you I happened to hear her chatting to herself as she played. Her initials are "D.D." and she often calls herself "Double D," so as I heard her chanting this nickname, on the spur of the moment I signed myself "Double Dee." It is my hope that I will bring some of her humour and originality to my contributions to your pages. She is a great comrade and brings me much happiness.—**"Double Dee," Tuakau.**

IT has been so good each month to read all the cheerful, helpful messages from "Good Neighbours," and coming across this verse recently I thought they might like it:—

*But as we meet and touch each day*
*The many travellers on our way,*
*Let every such brief contact be*
*A glorious, helpful ministry:*
*The contact of the soil and seed,*
*Each giving to the other's need,*
*Each helping on the other's best,*
*And blessing each as well as blest.*
—(Coolidge).

**—"Caradon," Waikato.**

MAY I join your circle? I would like to express my appreciation of your pages, which I always read from beginning to end. I think the competitions touch on some very interesting and important subjects.—**"Rainbow," Ashburton.**

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A VERY successful summer show was held recently at Taumarunui. We spent a most enjoyable day there, being interested in the sheep and cattle entries and the horse events. Some of us were inspecting a pen of prize sheep while a farmer enlarged upon their good points. But one lady had different ideas. "There's a fine sheep," she said, indicating one of the winners, "it's just right for a mat!"—**"Moana," Taumarunui.**

OFTEN when we were children we dressed up as warriors and stormed the rocky ramparts of the old Kitiri Pa. We fought mock battles round its huge trenches and played hide and seek in its big kumara pits. As we grew older we swam in the shady pool at the foot of the waterfall that dashes down the rocks. Kitiri is still my friend—it has seen both happiness and sorrow, and down the long years since first I saw its sunny heather slopes, Kitiri has been to me a help and inspiration.—**"Kitiri," Waiuku.**

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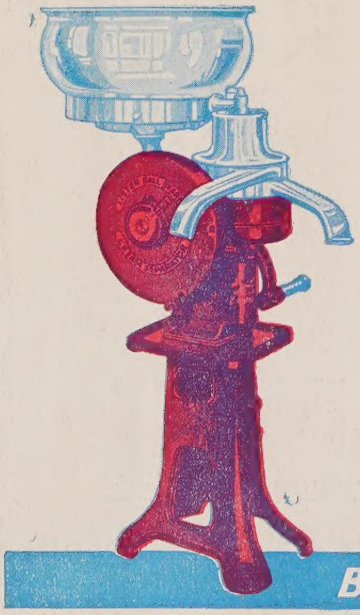

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